POPULAR Computing WEEKLY

Only 50p.

6–12 November 1986

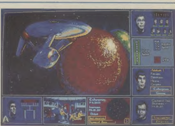
Vol 5 No 45

NEWS DESK

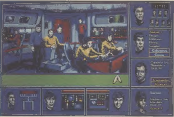
Sugar raises price of Amstrad PC – entry level 1512 now over £500

Tandy hits software problems on its PC

IJK denies piracy claim by Mastertronic



Star Trek



Special preview Star Trek – the Rebel Universe
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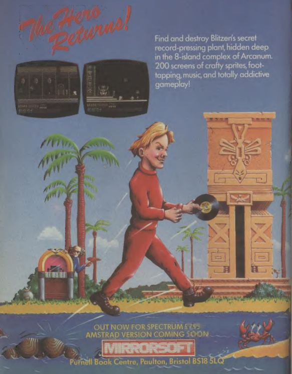
HARDWARE

- ●Designer joysticks
- ●Disciple – new Spectrum interface
- ●The Omnireader

DYNAMITE DAN II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Enemy

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ABC

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Amstrad: a Yen to raise prices

AMSTRAD has celebrated its 300,000th PC order with a price increase averaging 12 per cent on the range. The new prices range from £528 for the monochrome single floppy machine to £1,258 for the colour machine with 20Mb hard disc.

The price rises technically don't come into effect until January, but as orders placed now won't be delivered until after that it's unlikely that anybody ordering now will be able to get a machine at the old price.

Amstrad puts the price rises partially down to the strength of the Yen, which has forced the cost of its Japanese components up by 20 per cent. Prices of the other Amstrad machines have not been increased, however. A spokesman suggested that this was because the components were different.

Japanese sourced components are, however, unlikely to make up much of the total production cost of the machines, as Amstrad manufactures in Korea and uses components from a variety of countries in all its machines. The main Japanese input in the PC will, therefore, be the more complex of the chips, and possibly some disc drives. The lower tech circuitry and raw materials will generally come from countries like Taiwan, Korea and Malaysia.

More money for value . . .

Demand was, however, another factor in the decision to raise prices. Advance orders have already exceeded Amstrad's predictions for sales this year, but have been more heavily loaded towards the hard disc machines than the company expected, and have almost certainly harmed sales of the PCWs. The price rise, therefore, has the effect of taking some of the heat off the PCW.

Apple's new UK show

A couple of weeks ago I wrote, in a preview of Apple's new IIGS, that the UK company was lacking in initiative compared to the American parent.

I take it back.

The change of heart has been brought about by the AppleWorld exhibition and conference in London last week.

There was none of the claustrophobia or rugby scrums usually associated with computer fairs. Instead, as you'd expect from Apple, the show was cool and very stylish.

Star of the show was the IIGS running some very impressive sound and graphics demos.

But the bulk of the exhibitors were supporting the Mac. Arranged in four sections covering education, business, communications and desktop publishing, the show saw the launch of a couple of new products.

First was *Microsoft Works*, an integrated software package in direct competition with Lotus's *Jazz*, offering word processor, spreadsheet, graphics, database and comms for £250.

The second launch was of Ashton-Tate's first Mac product, a version of *dBase* (no price yet).

Other interesting stuff included add-on screens giving 1024 × 1024 resolution, colour laser printers, and the ultimate computer printer, a Linotron 100, giving a resolution of more than 1,000 dots per inch.

Not the kind of stuff that most of us can afford, but we can dream, can't we?

Peter Worlock

Due to the *Popular* printer copping out at the last minute, the last 13 lines of Ken Smith's Minz program were omitted when it was published.

So, here they are below. Also, you can still obtain a copy of the game direct from Ken.

```
21434 DATA160,0,189,93,158,153,140,142,169,2,153,140,210,200,232,224,39
21435 DATA208,239,162,0,189,62,157,157,26,142,189,75,157,157,162,141,169
21436 DATA7,157,26,210,157,162,217,232,224,9,208,231,165,197,201,64,240
21437 DATA230,169,255,133,252,96,162,0,189,25,159,157,0,130,232,224,136
21438 DATA208,245,96,0,0,0,0,1,5,85,85,0,4,21,21,127,255
21439 DATA85,85,0,0,0,80,84,84,85,85,85,85,85,85,85,85,84
21440 DATA84,85,85,85,85,85,85,85,85,21,21,21,5,5,5,1,1
21441 DATA10,10,10,10,10,10,10,10,10,42,170,171,171,170,170,170,168
21442 DATA234,245,245,234,234,234,170,0,0,128,168,168,168,168,168,255,255
21443 DATA255,170,170,251,251,251,251,251,251,170,170,255,255,255,195,255,255
21444 DATA195,255,255,195,195,0,0,0,3,15,59,255,127,0,0,0,192
21445 DATA240,236,255,255,63,63,63,59,63,31,63,63,124,252,236,252,252
21446 DATA248,188,252,74
```

Atari repays development grant

ATARI has repaid grants worth £2·6 million to the Irish Industrial Development Agency after its failure to complete work on a computer factory in Limerick. The factory was originally planned when Atari was owned by Warner Brothers.

Work was abandoned on the factory following Jack Tramiel's takeover two years ago. Atari currently produces most of its micros in Taiwan, although Tramiel has in the past expressed his intention to manufacture in the US.

Dedicated games

CDS Software is getting into the hardware market, and is to sell a range of hand-held and table-top games machines from Systema. The range includes dedicated chess and bridge machines, and also extends to draughts, backgammon, Reversi and Four-in-a-Line. Prices start at £19.95 and go up to £199.95 for the *Turbostar* chess machine.

Trouble for Tandy's PC

TANDY'S new cut-price PC, the 1000EX, has run into compatibility problems. The machine does run most industry standard applications programs, but its aptitude in the games market is not so clear cut, and embarrassingly for Tandy it won't run one of the games Tandy intends to sell alongside it.

The problem with the game, *Hacker*, seems to relate to the Tandy's non-standard keyboard. *Hacker* will load into the machine, which is probably why it got through Tandy's checking procedure, but as you can't use the cursor keys you can't get past the second screen.

Other games are similarly difficult. Sublogic's *Jet* does work after some investigation, but instead of the throttle controls being the plus and minus keys as normal they're cursor right and cursor down. Microprose's *F-15 Strike Eagle* has a nasty problem with the toggle between front and rear view (once you've done it once it keeps doing it) while *Boulder Dash* and *Boulder Dash II* again have cursor problems.

Some of these games will be playable with a joystick, as unlike the Amstrad PC the Tandy has a PC standard joystick port, and therefore even if the keyboard won't work the joystick should.

Tandy is meanwhile supplying Activision with a 1000EX in an attempt to identify the problem with *Hacker*.

The Tandy 1000EX

British games tilt at French awards

BRITISH software has been winning European awards recently – Palace Software's *Cauldron II* took the *Tilt* award for the best game of the year. *Tilt* is the leading French games magazine, and its readers are obviously *Cauldron* fans: last year the accolade for the best overseas arcade-adventure went to *Cauldron I*.

Gremlin Graphic's *Way of the Tiger* also won one of the *Tilt* awards (for the best Amstrad game of the year), as did US company Microprose's *Silent Service*, available in the UK through US Gold.

Tilt also awarded a 'Golden Tilt' to Anita Sinclair's *Pawn*, the highly acclaimed graphic adventure published by Rainbird, for the quality of its graphics. *The Pawn* has also gained adventure awards from the German magazines *Happy Computer*, and *64'er*.

Software Hotlines

English Software, well-known mainly as a company still producing titles specifically for the Atari 8-bits, turns its attention to the Amstrad CPCs and the ST for its next two releases.

O-Ball, for the ST, may sound like a Snooker game, but not if you talk to **English** boss Philip Morris: "Well, no, it's not exactly Pool or Snooker, but you'll have all the balls on screen – they'll all rotate independently – and you'll be able to view it from any angle."

Make of that what you will – a cross between Pool and a Newton's Cradle – and watch this space for further clarification.

On the Amstrad CPCs **English** is converting *ElektraGlide*, the racing game with a somewhat surreal touch. It should be out in a week or so at £8.95 (tape), £14.95 (disc). Also, Popular will be running an *ElektraGlide* competition next week so keep your eyes peeled.

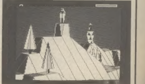
MikroGen's latest, *Cop-Out*, a shoot-em-up, gets a thorough play test at the final of **MikroGen's** National Computer Games Championship, being held this week at the Savoy Grill in London.

More championships from **CDS**, the publisher of *Colossus Chess*, which is sponsoring a Chess competition under the auspices of the British Chess Federation, Junior Division, and BBC's Ceefax service. Contestants are being picked through secondary schools.

The big surprise about **Ariolasoft**'s **Zarjaz**, a 'fast action shoot-em-up' (has any company ever advertised a slow-action shoot 'em up?) is that it's got nothing to do with llamaphile Jeff Minter. Coming out on **Ariola's Reaktor** label next month, it mainly comprises blasting everything in sight to bits in a state of suppressed panic.

It is now a well known fact that **Geoff Crammond's** *Sentinel* (to be released on BBC B and Commodore 64 very soon – full review within these pages next week) has fifty zillion levels (OK then – 10,000) and each can only be accessed via a secret eight figure code. Now, Geoff (it is said) has developed some wizzo system for encrypting these codes, so the only way into the various levels will be by playing the thing from level zero, and considering it took me a weekend to get to level 253, this is no pushover.

Hacking into the program will be useless, says a **Firebird** spokesperson, because even if someone gets through, there are a totally false set of numbers, just to put you off! Will the *Sentinel* code ever be broken? **Firebird** remains adamant - "no way," it says. Me? I give it three weeks, max.



Sentinel

Beyond is brought from the cold

BEYOND'S career as a separate entity is now over, according to BT Telecomsoft head Ederyn Williams. In the past few months it has lost publisher Francis Lee and marketing manager Marc Peirson, and rather than replace these two Williams has taken the opportunity to merge it more closely into BT's mid-range operation, which now consists of Firebird Gold, Odin and Beyond.

These three will now be run as separate labels by a more centralised production team, with the different labels being used to differentiate between different kinds of software, and Beyond in particular concentrating on "quasi adventures and licensing deals." Significantly Williams refers to these as the label's existing specialisations, although *Star Trek* is actually only the second such deal Beyond has been involved in. The first was last year's disastrous *Superman* game.

"We've orders to return to Federation territory captain."

Williams feels that more centralisation will be good for the BT labels, making them more flexible and easier to run. "In this business it's no longer easy for a small unit, even within a big one."

The merger should go some way to decrease friction within Telecomsoft, where staff have spoken of resentment at the way the label sometimes seemed to be run. Williams says that the reorganisation had been talked about before the departure of Lee and Peirson, but confirms that their leaving also had an influence.

IJK denies piracy claim

IJK Software, which last week was at the centre of two separate piracy storms, has laid the blame at the door of the programmer in both cases. Ian Sinclair of IJK accepts that its *Crimebusters Inc* is similar to Mastertronic's *Spellbound*, but says that he released the game without being aware of this.

"We hadn't seen *Spellbound* until Mastertronic contacted us, but within half an hour we'd withdrawn it from sale." Copies of the game are now being destroyed as they come back to IJK. "Any software house in the country is open to things like this," says Sinclair. "I just worry about how much of it can go on."

Mastertronic itself is now pursuing the matter with the programmer, who has been given the option of admitting guilt or being sued. "I'd like it to be known to any software house not to go near the guy," says Alison Beasley of Mastertronic.

The second clash, between IJK and Audiogenic, seems to be more complex. Audiogenic's *The Last of the Free* and IJK's *Quest for Freedom* are very similar, and were written by the same author, but Sinclair claims IJK had the program first. "We payed him £300 for exclusive rights early in 1986, and we made it clear that we would not release it until Christmas.

The programmer seems to have signed with both IJK and Audiogenic, but Sinclair insists that he signed with IJK first. Neither software house has as yet seen the other's product, but it seems unlikely that the matter will go any further. "I'm prepared at this stage to accept that Audiogenic published it in good faith," says Sinclair.

Commodore predicts profit

COMMODORE moved a little further back from the precipice last week, agreeing new credit terms and predicting that it would show a profit for the second successive quarter.

The new agreement gives Commodore a worldwide credit limit of £140 million, slightly up from the previous figure of £135 million, and is due to be signed later this month. The results for the quarter ended September 30 are due for announcement later this year.

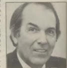
Budget PC software producer aims for the big time

US cut-price software producer Migent International is set to move into the European market with one of the best bargains ever to be offered in the PC sector. The company is selling *Ability*, one of the most highly regarded integrated packages in the US, at an introductory price of £69.95 (it's normally £99.95) and is offering free training for dealers in the use of the package.

According to Migent managing director Chuck Hamilton the aim of this is to ensure that practically every dealer in the country knows how to use the package, and to take Migent up into the big league alongside Ashton-Tate and Lotus.

Migent certainly has a lot more experience on board than the average newcomer. Company chairman is ex-Lotus and Ashton-Tate, while president David Patrick is ex-Ashton-Tate and development head C. Wayne Ratliff wrote dBase II and dBase III.

In addition to *Ability*, Migent will shortly be launching *Enrich*, a database management system, for £139.95, and will be bringing other items from its US range into the UK next year. The most interesting of these isn't software at all – the company produces a pocket modem that is five inches long and supports baud rates from 300 up to 1200.


Hamilton: free training

The device costs $150 in the US, and is liable to be around the £100 mark here. For this you get a Hayes compatible box that is completely software controlled – it simply has an RS232 port at one end and two BT sockets at the other, and is powered by a single nine volt battery. The device has yet to receive BABT approval, but is expected to go on the market here sometime next year.

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Umbrella body formed

A NEW microcomputer industry trade association, the British Micro Federation, was set up last week.

The BMF aims to fill and expand the roles played by the now-defunct Guild of Software Houses, and will include hardware manufacturers, software companies, wholesalers, duplicators and the computer press in its membership.

Around 75 companies were represented at the inaugural meeting held in North London, and five areas headlined initially for the federation's attention.

It was generally agreed that relations with national newspapers, television and other media were poor, and that a less gloomy picture of the microcomputer industry could be presented. Most speakers concurred that thorough and accurate market research on the size of the industry and statistics on hardware and software usage was needed. Thirdly, a suggestion for the BMF to draw up a code of practice for members — pre-announcement of software releases was included here.

The need to act strongly against software piracy, in conjunction with the Federation Against Software Theft was also noted. Finally, the use of the federation as a forum for discussion and co-operation between companies went on the list.

New printer from Brother

BROTHER is to launch a souped-up addition to its range of printers at the *Which Computer?* Show in January. The Brother 1709 will sell for around £595, has 136 columns and prints at 240 cps draft and 50 cps NLQ (near letter quality).

The 1709 has a 24K buffer and its features, including the interface selector, line spacing and baud rates are all selected from the front panel rather than by dip switches.

Details from Brother Peripherals, Shepley Street, Guide Bridge, Audenshaw, Manchester M34 5JD. Tel: 061-330 6531.

Three from First

FIRST Software is to launch three new PC packages this month – *Decision Director, Ability* and *Printility*. *Ability* is an integrated package from Migent (see page 6) retailing around the £70, mark, while *Decision Director* is a lower cost alternative (£39.95) consisting of word processor, spreadsheet and window manager.

Printility is a £49.95 print utility designed to work with any word processor and to make it easier to control the printer's functions. First suggests it could be particularly useful with laser printers.

Details from First Software, Unit 20b, Horseshoe Road, Horseshoe Park, Pangbourne, Berks RG8 7SW. Tel: 07357 5244.

Footnotes

LEVEL 9 has signed a contract with Delta 4 to produce a joint project spoof adventure for publication next Easter. Both parties are keeping quiet about the subject matter, but here we see Mike Austin (9) showing Fergus McNeill (4) a bug he's found in the program . . .

Commodore is meanwhile keen on convincing us that it knows just what we'd all like in our stockings this Christmas. The company's stand at next month's Commodore show will be "bristling with innovative gift ideas" including, apparently, "some of the results currently being derived from the Amiga in use at the Heslerton, Yorkshire Archaeological Project, the largest rural excavation in the country." Just what we'd always wanted . . .

CSD on the other hand is extolling the virtues of its Sparklers range of budget games. "Sparklers are too good to be budget," trumpets the release. As we recall that's what CSD thought when it released them at full price some considerable time ago.

Still, if you can change your mind once . . .

Austin and McNeill

Diary Dates

NOVEMBER

7–9 November

Electron and BBC Micro User Show

New Horticultural Hall, Greycoat Street, London SW1

Details: Hardware, software and peripherals for the Electron, BBC micro and Master series

Prices: £3 adults, £2 children, £1 discount for advance booking

Organiser: Database Exhibitions, 061-456 8835

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8 November

UKEUG National Einstein Show

National Motor Cycle Museum, Birmingham

Details: Einstein software and hardware.

Price: Free

Organiser: UKEUG, 07982 2399

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15 November

Wales and West Computer Show

Central Hotel, Cardiff

Details: All types of home computer and support

Price: £1 adult, 50p children

Organiser: Preston Exhibitions, 0656 880965

21–23 November

The Commodore Computer Show

Novotel, Hammersmith, London W6

Details: Hardware, software and peripherals for the Commodore range of computers

Price: £3 adults, £2 children, £1 discount for advance booking

Organiser: Database Exhibitions, 061-456 8835

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22 November

6809 Show

Old Halls of the Royal Horticultural Society

Details: Show for the Dragon and Tandy Colour Computers

Price: £2.50 adult, £1.75 children, reduction for advance purchase

Organiser: Jenny Pope, Microdeal, 0726 68020

28–30 November

The Atari Christmas Show

New Horticultural Hall, Greycoat Street, Westminster, London SW1

Details: Hardware, software and peripherals for the Atari range of computers

Price: £3 adult, £2 children, £1 discount for advance booking

Organiser: Database Exhibitions, 061-456 8835

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

CSD joins the PC bandwagon

CSD (Creative Sparks Distribution) is joining in the PC budget software battle with a new label – Trust Software. The first three products to be launched are *Trust Writer*, a *Wordstar*-like word processor for £49.95; *Trust Speller*, free with *Trust Writer* but otherwise £19.95, and *Trust Desktop*, a Ram resident calculator/notepad/Ascii table/calendar combination for £24.95.

These will be followed by *Trust Calc* and *Trust Filer* spreadsheet and database software.

Details from CSD, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hampshire GU14 0NP. Tel: 0252 522200.

Front end system for Dos

MENUDOS is designed to provide an easy to use menu system and front end to MSDOS. It allows up to 24 options per screen and up to ten nested menus, and also features password protection. As a Dos front end it includes a batch file generator and editor, a lock-out facility for unwanted Dos commands, a Dos tutor and online help. It will also automatically search through a hard disc organising all files under its menu system. The program costs £53.

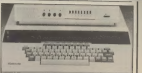
Details from Excel Computer Systems, Cables House, Hall Street, Chelmsford, Essex. Tel: 0245 351608.

Writes issue from HiSoft

HISOFT has launched an enhanced version of *Write-Hand-Man*, a productivity tool similar in concept to Borland's *Sidekick*, to run on Amstrad's CPC6128. It already runs on all the Amstrad CP/M machines, but the new version has been enhanced to take advantage of the 6128's graphics and keyboard layout. The program is intended to run alongside standard applications software and includes a calculator, notebook, phone book, appointments diary, calendar, screen editor and key macro facility.

The screen editor allows you to cut text from a file and paste it into your current document, while the key macro facility lets you reproduce sequences of keystrokes at any point in a given program. *Write-Hand-Man* costs £29.95.

Details from HiSoft, The Old School, Greenfield, Bedford MK45 5DE. Tel: 0525 718181.



Tatung offers Einstein bundle

TATUNG is now offering the earlier version of its Einstein bundled with a 14 inch colour monitor for £349. The machine has 80K Ram, 3 inch disc drive, Centronics, RS232 and joystick ports built in. Unlike the new 256K it won't directly run CP/M programs, but expansion facilities are available, along with various emulators.

Details from Tatung, Stafford Park 10, Telford, Shropshire TF3 3AB (0952 613111).

ELECTRON & BBC MICRO USER SHOW

Organised by Database Exhibitions

New Horticultural Hall
Westminster, London SW1

Friday 7 November 10am-6pm
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Sunday 9 November 10am-4pm

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More to being a woman than cooking

Your Ziggurat in *Popular*, October 23 has prompted me to write as it cries out for further discussion (albeit from a male)

Granted that the computer industry seems geared to male tastes, but surely there is room for female participation (witness the ladies of St Brides). Market research doesn't seem to be this industry's strong point, especially when yet another *JSW* arcade game or Tolkienesque adventure will bring the money rolling in

Your article goes on to make various equally valid points but doesn't offer a possible solution to the problem

I don't have a cut and dried answer, but I have another question what kind of software would most women like to see? On the face of it, there doesn't seem to be very much [illegible] women's magazines that would be better served by a computer interpretation

Cooking or knitting programs (though certainly possible) are as ludicrous as they are offensive. There must be more to being female (I hope) than that I have a few suggestions:

a) Tips on the use of cosmetics using graphics and a database

b) Diets and calorie calculating tailored to the individual

c) Romantic adventures involving real people for a change

d) Educational software with a shift towards the mother rather than the father

To men this may sound like a recipe for boredom – do women feel the same way? I think it's time women made their feelings known.

Nick Cheesman
Fareham
Surrey

The Editor replies:

While we take your point about no solution being offered in the Ziggurat, it has to be said that neither of *Popular's* two women staff were wildly wildly enthusiastic about your suggestions.

I dread to think what a bunch of low-res pixels could do on a cosmetics program; diet programs have been around for some time now, and can obviously be quite useful (if you feel like loading up the computer every time you eat a Mars Bar), but I'm not clear on why you assume only women need to diet. Adventures involving 'people' rather than trolls is a plea we've covered in the Ziggurat column only recently. The idea about making them 'romantic' incidentally, went down like a lead balloon.

The point in the October 23 Ziggurat was about mainstream games catering for male tastes, portraying male heroes, and man as hero/only person who can defeat the Mighty Tharg, etc. Somehow I don't think we'll ever see Judy Simpson's Heptathlon, Fatima Whitbread Throws the Javelin, or Navratilova's Wimbledon in the shops, although these three are just as 'marketable' as their male counterparts.

Plus, look at all the games which involve the player as a Harrison Ford-style hero off to rescue the latest 'helpless princess'. Let's face it, if you're an unarmed *man* stuck in a *Karateka* type scenario, with dungeons, locked doors and henchmen guarding over you, you're going to need some outside help.

Fun and education

Although delighted to read your article on the Commodore 64C Connoisseur's Collection (*Popular*, October 16), I fear that Andrew Mayfair may not have seen the handout from ourselves submitted with the machine for review.

He would then have realised that this collection represents a deliberate departure from the previous games/joystick compendia in that its appeal lies in providing whole family entertainment over the Christmas period and the basis for continued fun and educational value afterwards.

I appreciate that time may have disallowed him a foray into the Leisure Genius games but *Monopoly* and *Scrabble* in particular are not only faithfully computerised transfers of the original board games but, I believe, are better in many respects than the originals Computerised bank balances and property records score heavily in favour of this version of *Monopoly* and the educational value of *Scrabble* is legion

On the subject of value for money, the cost [illegible] the mouse and cheese graphics package plus a 64C at a total recommended retail price of around £250 equates with the complete Collection's price so the Datasette, five board games and Pitman typing tutor are effectively free of charge So, taking Andrew's recommendation to its logical conclusion – buy a Connoisseur's Collection and you have the basis of a sound investment.

Lastly, he suggests that "a return to the stalwart 64" will be Commodore's salvation. After four years and world-

continued page 12 ▶

Puzzle

Puzzle No 232

'I am thinking of a four-digit number, with all digits different,' said Arnold, 'And I want you to guess what it is'

'6015', I replied, hazarding a guess

'Sorry, nowhere near!' remarked Arnold, 'Your number only contains one of the digits [illegible] my number – but it is in the correct position Have another guess!'

I did so, and Arnold replied, 'Very good! This time you have got all the digits present, though not in the right order In fact you are just 3456 too high!'

Of course, I now knew what number he was thinking of – but can you work it out?

Solution to Puzzle No 227

Answer: Apart from 1634 (given in the question) there are two other four-digit numbers with this property

$8208 = 8^4 + 2^4 + 0^4 + 8^4$ and $9474 = 9^4 + 4^4 + 7^4 + 4^4$

Solution: In the program all four-digit numbers are taken in turn and placed in the string variable *N$* From this string, each digit is taken [illegible] turn, and the fourth power of the number is calculated This is done by direct multiplication rather than by using the power command to ensure absolute accuracy Any numbers in which the total of the powers of the digits equals the generating number are printed out.

Winner of Puzzle No 227

The winner this week is S Hazelgrave of Leeds, West Yorkshire who will be receiving £10

Rules

The closing date for Puzzle 232 is November 24 Answers on a postcard please.

```
10 FOR N=1000 TO 9999
20 N$=STR$(N)
30 T=0
40 FOR F=1 TO LEN(N$)
50 V=VAL(MID$(N$,F,1))
60 T=T+V*V*V*V
70 NEXT F
80 IF T=N THEN PRINT N
90 NEXT N
```

▶ continued from page 11

wide sales of six million units, the 64 is still capturing 20% of the total annual UK computer marketplace. Certainly it represents a substantial revenue earner for Commodore alongside the Amiga. First year Amiga sales will pitch in at between 120,000 to 150,000 units worldwide. Pretty good compared to the Apple Mac's 140,000 first year figure for a machine that he claims is "obviously not going to become the same groundbreaker".

Paul G Thompson
Harvard Marketing Services - PR Consultants to Commodore (UK)

Eeney meeney miney mo . . .

It was interesting to read the two letters published in your October 16 issue, making comparison between the Atari ST and two other micros.

The 1040 ST is on my short list for purchase, together with the expected new QL improvement, the QLT by Sandy, and perhaps also the two new versions of the Commodore Amiga, expected soon.

My needs are rather more like those of Howard Oakley (Letters, October 16) than to the games player from Belgium.

However, the latter's desire for good sound and excellent colour graphics could, I suspect, be alternatively satisfied by the new Tatung Einstein, if only it had 512K rather than 256K!

And the new Apple IIGS, plus the rather expensive Amiga, could excite him, too.

But I am really after a cheap alternative for the Apple Macintosh Plus for desktop publishing and other business applications. So the monochrome 1040 ST plus Mirrorsoft's anticipated *Fleet Street Editor* could be the answer.

One final point – can anyone advise me about Ram discs?

Would the use of Ram disc software such as that marketed by Robtek for the ST enable one to manage without a second (hard or soft) disc drive? What is the normal advantage of having double rather than single disc drives?

P M Kingston
Bristol

Fantastick?

I read with interest the article on the Fantastick 2 joystick (*Popular Computing Weekly*, October 2). I say article, although it reads like an advertisement for an extremely ordinary overpriced joystick.

All right, so it has four suckers on the base, an automatic fire switch and an MSX switch. The Spectravideo Quickshot 2 offers the same at half the price.

I know it doesn't have an MSX switch, but that's because it doesn't need one. It just works anyway.

I use my Quickshots on my Commodore 64, Yamaha CX5M and Toshiba HX-10, without any problem.

I also use two Coleco joysticks (old games controllers) on all the above computers, again with no problem.

They don't have automatic fire, but they cost £1 each in a secondhand shop.

Noel Jealous
Cardiff

QL and ZX magazine

I would like to announce a magazine for Sinclair QL and ZX Spectrum owners. It is called QZ-Net and is produced on Microdrive cartridge for both computers.

It has a strong bias towards programming (especially networking between the computers), but also includes reviews and other articles. QZ-Net is available from the address below. Send a cheque (payable to P Lavender) or PO for a mere 50 pence plus a Microdrive cartridge, stating which computer you would like the cartridge formatted on.

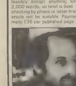
Phillip Lavender
27 Min Y Coed
Radyr
Cardiff
CF4 8AQ

Get writing – get Popular

Popular Computing Weekly always welcomes contributions from its readers for articles, features, and program listings.

Whether you want to write articles, see your programming masterpieces in print, pass on some words of wisom, or simply let off steam, there's space in the magazine for you.

Ideas for **feature articles**, or completed articles, should be sent to Christina Erskine. All aspects of home computing are considered, but we cannot feasibly accept anything longer than 2,000 words, so brief is best. It's worth checking by phone or letter first that your article will be suitable. Payment is normally £35 per published page.



Technical editor Duncan Evans looks after the **program listings**, and articles on programming. We rely on you for our Programming section, so earn yourself a place in the *Popular* Hall of Fame (and £25 for each page we print) by having your program published. Even if it's not 100s of K of pure machine code, but a short snappy routine, there may well be a place for it in **Bytes and Pieces** (£10 a shot).

Articles on any aspect of programming are also welcome – with short listings included if relevant.

Got something you feel needs saying loud and clear? Your opinions on any aspect of the computer industry are welcomed, so why not write in to the **Ziggurat** section? No more than 600 words, please. If published, we'll pay you £15.

So maybe it's not the money you're after, but you'd just like to have some say in the magazine.

For shorter comments, general observations or queries, there is of course the **Letters page**, with the tempting offer of a year's supply of *Popular* binders for the Star Letter each week.

For more specific points, our team of columnists are always willing to answer questions, and keen to hear the latest information. Drop your lines to **Tony Bridge** (adventure hints always gratefully received); **Tony Kendle** (who wants as many Arcade pokes, maps, solutions, etc, as possible); **David Wallin** (communications); **Kenn Garroch** (programming problems); **Mark Jenkins** (music queries and sample tapes) and **Martin Bryant** (computer chess comments).

All letters should be addressed to *Popular Computing Weekly*, 12–13 Little Newport Street, London WC2H 7PP. If you mark your letters with the department you want, things get processed much more quickly.

Left: the adventurous Tony Bridge.
Right: the active Tony Kendle.

The return of the prodigal Adventurer's Club

Tony Bridge uncovers the mysteries of adventurers' support groups

One of the most successful adventure clubs in recent months has to be *The Adventurer's Club*, run by Henry Mueller. The combination of a full-time club offering help, well-founded advice and discounts to adventurers proved irresistible to many of the hobby's adherents.

During the early part of this summer, however, I started to receive letters from members worried about the lack of response from the club – a dismally common state of affairs, I'm afraid, in the atmosphere of today's home computing business, but I was surprised to hear that this particular operation seemed to have gone the way of other less thoughtfully-run clubs.

Throughout the summer, all has been very quiet from ACL while I have opened more and more letters from disgruntled members. By now you will probably have read that the club is back in business, with Henry once more [illegible] the helm. He is now in full control of the club, rather than the managing position he held before and has obtained the services of Hugh Walker, Adventurer Supreme and Richard Bartles, the originator of MUD.

Pete Austin of Level 9 will, I believe, continue as Honorary President.

If you are serious about your adventuring, then it's well worth joining ACL as it is one of the best. However, the whole episode must serve as a warning to everyone that things can go wrong – mere enthusiasm is not enough.

In the meantime, other clubs and magazines carry on. Nick Walkland's iconoclastic *Orcsbane* is my favourite. Sixty pages of adventure reviews, comic strips (still, unfortunately, uncredited), the usual verbose letters (I love 'em) and of course the requisite tips and help for just 70p is a great deal – and this is one of the few magazines that receives contributions from established writers in the field such as Bob Chappell and Mike Gerhard.

What is evident from reading *Orcsbane* [illegible] that adventuring [illegible] obviously fun to the producers of the (non-profit making) magazine. Write to Nick at 84 Kendal Road, Sheffield S6 4QH, or ring 0742 340433.

Pat Winstanley and Sandra Sharkey are still battling away with *Adventure Probe* and *Adventure Contact*. *Probe* is the usual stuff of help, advice, letters and reviews – although the magazine is well-written it's a bit pricey [illegible] £1, although there is a very cosy atmosphere about the whole thing, and Pat and Sandra seem to encourage a lot of support from women adventurers as well as men.

Contact, on the other hand is unique and a much better deal for just 50p; [illegible] this magazine, you'll find all sorts of advice on writing and marketing adventure programs, drawing on the personal experiences of authors who have already taken the plunge. The present issue has a detailed breakdown of the differences between *The Quill* and Incentive's GAC, as well as articles about packaging, copyright matters, Do's and Don'ts of adventure-writing and so on. Sandra (for *Probe*) can be found at 78 Merton road, Wigan WN3 6AT, and Pat (the *Contact* arm of the enterprise) can be contacted at 13 Hollington Way, Wigan WN3 6LS.

Next week: news of a new *Quill* and some new games coming out.

Adventure Helpline

Rebel Planet on Commodore 64. I cannot open the outer hatch of the space ship Caydia. Raymond Edger, 91b Grosvenor Park, Camberwell, London SE5.

Empire of Karn on Commodore 64. How do I get the diamond from the snake? What do I do about the crack in the pyramid? David Westerdale, 9 Upper Town Road, Greenford, Middlesex UB6 9JE.

Kantilla on Spectrum. I cannot find the gold key. I cannot get the idol with the sword [illegible] stop killing me. I cannot get the iron rod without dying. Luke Bruce, 65 Sorrel Gardens, South Shields, Tyne and Wear.

Return to Ithaca on Spectrum. How do I catch the cats? Where is the food I need to eat? Alan Hughes, 22 Tyddynto, Menai Bridge, Gwynedd.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure .... **on (Micro)** ....
Problem ....
....
Name ....
Address ....
....

Souls of Darkness on Spectrum. How do I get the axe? Also how do I get the crystal? Sean Haydon, 20 Prouds Lane, Bilston, West Midlands.

Dungeon Adventure on BBC B. How do I get the horn without the goat killing me, and how do I kill the black sphere? Mrs Barbara Gibb, 52 Burford Road, Liverpool L16 6A2.

The Quest on Commodore 64. I can't get very far. Please, any help – I'm going mad! David J Le Mesurier, Raptor Technician, Alfaisal Falcon Centre, Al-soodah Assir, Abha PO Box 513, Saudi Arabia.

Souls of Darkon on Amstrad CPC 6128. I've found the sword, axe, mushroom, anti-gravity belt, ring and coin, but I cannot get past the monolith. Help! Mr D Adkin, 75 Crescent Road, New Barnet, Herts EN4 9RD.

Wear boots, give glue to aliens

Tony Kendle (finally) tells you exactly how to solve Knight Tyme

As promised last week, we have the pokes here for *Sorcery* and *Batman* for the Amstrad CPCs. Many thanks to Hackers Unlimited.

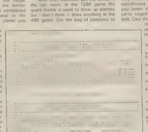
Before printing the complete solution of *Knight Tyme* from Adam Mayor, which we'll do in two parts I thought it would be as well to give other people a chance by slipping in the following from one or two other letters.

Stephen Johnston of South Ockenden sends the following tips. "The bag of runes will enable you to cast the 'consult oracle' spell. If you wear the magic talisman you can remove the barrier (however, the game can be completed without this). Pay close heed to the information given at every planet you visit."

Stephen writes that "*Knight Tyme* is one of the best games I've ever played as, unlike many arcade adventures including *Spellbound*, it holds the player's interest with problems that I had to keep returning to."

Phil Waknell of Melton Mowbray had not finished the game when he wrote but here are his tips, which we will follow up with Adam's contribution to the solution.

"Upon starting go left one room and take the instant film from Gordon and the McTablet food from Sarab. At no time must you drop the letter. Drop gadget X. Unwear your cloak of invisibility. Go left one room and get the camera. Go right three rooms and command Derby IV to help and a blank ID card will drop onto the floor. Pick this up.



Next find the small robot S3E3 (make sure it is not the robot Klink) and give him the instant film and the camera and then command him to help. You may have to wake him up first. Then take from him the photograph and the pot of glue and select the wear command from the menu and select the, now valid, ID card. You can then ask Sarab at the bridge for help and get the advert from Sharon. You can fortify her if she needs it."

Adam Mayor continues. "You can give Sharon the heart from Derby; it isn't necessary but it makes her feel wanted. You can now get the map and the tankard and you will find that you can go up in the world.

"Before you go to Monopole go to Starbase one where the transporter will be fixed and where you can refuel. (When travelling between planets always use Time Distort 1 as it saves fuel, otherwise you may not get enough at the planet to refuel. Some of the planets which give you fuel are Naff, Eden, Lynx, Herschell and Trantore.)

"Also from Starbase get the boots in the last room. In the 128K game the quark bomb is used to blow up planets but I don't think it does anything in the 48K game. Get the bag of potatoes to give to Murphy on retreat. Wear the boots. Give the glue to an alien – I can't remember his name but he is green if you have chosen the attribute option at the beginning – just ask them all for help.

"I found the hardest part was getting the coordinates of USS Pisces – they made me give up the game until I got help – the answer is of course XO YO ZO.

"At Monopole wear the gas mask and cloak of invisibility. In the life boat room you can get coordinates on a terminal, in the second room there is a yellow triangle – get this and take the part of a sundial and talisman from Hooper.

"On the ship unwear the gas mask and the cloak and go to Retreat. If you hang around Lynx and tune into their radio you will find Murphy's coordinates but, just between you and me, they are 8X 4Y 1Z.

"Once down there you may have to use the remove barrier spell to get to him. Take the part of a sundial off him.

"When you meet up with the Tyme guardians take care because they are lying – go over to Trantors to find out why. Alternatively just add one to the coordinates that they give you. Before you beam down put the three sundial parts together and cast the lightning bolt. Cast this again after they give you a machine. Before you launch it remember what they said at Herschell."

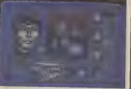
Here is a list of the routes to various planets:

Eden leads to Deneb, Gath, Monopole, Limbo, Brightstar, Polaris, Starbase
Starbase leads to Eden, Herschell, Polaris, Arida, Gangrole
Herschell – Monopole, Porthos, Reef, Plop Plop, Starbase
Monopole – Gath, Porthos, Eden, Herschell
Gath – Deneb, Monopole, Limbo, Eden
Deneb – Gath, Limbo, Eden
Limbo – Deneb, Gath, Eden, Brightstar, Polaris
Brightstar – Limbo, Eden, Polaris, Dragon Egg
Polaris – Limbo, Eden, Brightstar, Starbase, Dragon Egg, Arida
Dragon Egg – Brightstar, Polaris
Arida – Polaris, Starbase, Gangrole
Gangrole – Starbase, Arida, Naff
Naff – Retreat, Gangrole
Retreat – Plop Plop, Trantore, Outpost, Pinkitt, Naff
Plop Plop – Porthos, Reef, Lynx, Herschell, Trantore, Retreat
Porthos – Monopole, Reef, Herschell, Plop Plop
Reef – Porthos, Lynx, Herschell, Plop Plop, Trantore
Lynx – Reef, Nirvana, Plop Plop, Trantore, Outpost
Nirvana – Lynx, Trantore, Outpost, Bingo
Trantore – Reef, Lynx, Nirvana, Plop Plop, Outpost, Retreat, Pinkit
Outpost – Lynx, Nirvana, Trantore, Bingo, Retreat, Pinkit
Bingo – Nirvana, Outpost, Pinkit
Pinkit – Trantore, Outpost, Bingo, Retreat, Menopausia
Menopausia – Pinkit

Next week we'll pass on some tips for *Herbert's Dummy Run* and a map for *Strike Force Cobra*.

Star Trek!

In the year of the twentieth anniversary of the world's best-loved TV series, it's appropriate that the event be marked by what looks like being a classic computer game, *writes Chris Jenkins,* and that's what *Star Trek* is about.



Star Trek is known throughout the world, and re-runs of the 80-odd TV episodes are still being shown, together with the three films (and another in production). The *Star Trek* game, from the Beyond label, is near completion and looks like a stunning production effort which will capture the imagination of thousands of Trekkies.

The Atari ST version will be closely followed by CBM 64, Amstrad and Spectrum games. In each the format will be similar but it's the ST version which will probably have the most impact with its incredibly detailed graphics and enormous playing area.

The actual title of the game – *Star Trek: The Rebel Universe* – reflects the format of the adventure. It takes place in an enclosed globe where units of Star Fleet have been going rogue and throwing in their lot with the despicable Klingons. Your task is to patrol the globe, hunting out the rogues and bringing them back into the fold – or eliminating them. The main display shows all the main members of the cast on the bridge; the TV version incidentally, not the movie version. Using the mouse you move the Star Fleet insignia to the character you choose and click to bring up the command screen.

The individual portraits of the main characters – Kirk, Spock, Scott and so on – are wonderfully drawn by artist Steve Cain, and could almost be photographs. As each character's command screen fills the main area, the bridge display is relegated to the sidelines, ready to be called again when you want to access a new character.

Each character controls a different aspect of the ship's operation; Sulu navigation, Chekov weapons, McCoy medical and so on. It's up to you to select phasers, photon torpedoes, warp drive, and all the *Star Trek* paraphernalia we have come to know and love.

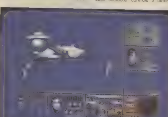
Your first task, obviously, is to select a star system and warp to it. You use Sulu to set your course on an incredibly animated 3-D star globe then warp to the star system and scan for inhabitable planets. Putting together a team supplied with appropriate equipment from the stores is the next task; then select the Transport option to beam down to the planet.

Once landed, your team must negotiate alien complexes, solving the puzzles of locked doors and intractable aliens using their individual skills and the equipment available. Should any character be injured by dangerous artifacts or alien action, it's back to the ship and straight to sick bay for McCoy to work his magic.

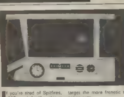
The action is illustrated by gorgeously detailed graphics of the *Enterprise* in orbit and any alien ships you might encounter. Apart from the familiar Klingon and Romulan battle cruisers, these will include fast-moving hunter-killers which grow more vicious as the game progresses.

The battle scenes take place on two screens; a medium range scanner which revolves to show the location of incoming hostiles, and a short-range display in which you target wire-frame graphics and launch your photon torpedoes. With luck and skill you should see the alien cruisers disintegrate; if so, and you haven't sustained too much battle damage, it's on to the next star system in search of the next artifact or item of data you need to complete your quest.

The finished game will include communications routines for Uhura to perform, sampled speech from the TV series, and authentic sound effects. With 256 subplots to complete, and a number of different win scenarios (plus any number of losing ones) it looks as if *Star Trek: The Rebel Universe* is going to provide a feast of entertainment for games players of every type.



More bluster and fluster



If you're tired of Spitfires, F15s and the like, this is the big one. US Gold's *Dam Busters* puts you at the controls of a Lancaster bomber, and pits you against flak, searchlights and of course the dams in an effort to do severe damage to Germany's war effort.

Unusually for a flight simulator you play six characters in all – navigator, flight engineer, pilot, bomb aimer and front and tail gunners. You switch between these with the aid of the function keys, and the nearer you get to your target the more frenetic the action gets.

The game can be started at one of three points dam approach, a mid-Channel or at your base airfield, with the difficulty level being varied simply by the distance to the target. Starting from base you switch to the navigator to set the course, then to the engineer to fire up the engines, then to the pilot to take off.

Once you're airborne you adjust the balance of the engines and toggle between gunners and pilots, with the odd dose of flight engineer to adjust speed or put out engine fires.

The gunnery section pretty well knocks any ideas you might have had about simulations on the head. You spend the entire mission blazing away at flak, searchlights and enemy fighters, and while it's entertaining from an arcade point of view you generally find you've knocked out more than a self-respecting Reich could reasonably sustain. I was also a little perplexed to discover that you met as much opposition over Wales as over the Ruhr.

Once you abandon the Welsh Water Authority and get to the real target you need to line up the aircraft at the right height and speed then switch to the bomb aimer, who fine tunes the height and drops the bomb. In my experience you then get a pretty picture of your bomb bouncing across the lake – and missing.

As a game it's diverting enough, but I feel it could do with a little extra something to make it great entertainment. And on that subject I notice that the wrapping says 'Lancaster model offer inside'. I've never had an offer from a Lancaster model, but as it hadn't been included I remain disappointed.

Popular Appeal ◆◆

John Lettice

Program *Dam Busters* **Micro** IBM PC and compatibles **Price** £19.99 **Supplier** US Gold, Unit 10, Parkway Industrial Centre, Birmingham B7 4LY.

How to win an Academy Award

Pete Cooke's *Tau Ceti* was acclaimed as one of last year's best games, with original 'moonscape' style graphics and sophisticated controlling of your craft through cities of outer space.

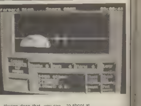
Well, every good game deserves a sequel, and Cooke has now come up with *Academy – Tau Ceti II*.

Academy has you as a student pilot at the Galcorp Academy for Advanced Skimmer Pilots, taking on 20 missions in order to graduate from the college. The missions are divided into five levels of four each and to qualify to move up a level you must score over 90% on your present stage.

Menus are used to take you through the preliminary stages of selecting a mission to try out and a skimmer to go with it.

"A really nice touch here is the option to design your own skimmer"

A really nice touch here is the option to design your own skimmer, rather than settling for GCS Lenin, Lincoln and Wilson, already provided. You can put all the instruments and controls exactly where you find them most handy, and choose your own equipment – within a budget.



Having done that, you can set off on the Level 1 missions, enticingly called If It Moves, Red Dawn, Meltdown and Softly Softly. A separate screen gives some rather enigmatic details about what these entail.

Having chosen your mission, equipped your skimmer, and launched yourself on to an unsuspecting solar system, you find yourself in a very *Tau Ceti*-esque scenario of strange shaped objects looming up from the distance, smooth, swinging movement from right to left, and plenty to shoot at.

The instructions with the game are long and fairly daunting – rest assured that the game is rather more straightforward to play.

If you liked the graphic style and gameplay of *Tau Ceti*, then *Academy* isn't going to hold any disappointments.

Popular Appeal ◆◆◆◆

Christina Erskine

Program *Academy* **Micro** Spectrum **Price** £9.95 **Supplier** CRL, 9 Kings Yard, Carpenters Road, Stratford, London E15.

The tassiest game in the world

Forget about street credibility. Elimination 'hip' and 'cool' from your vocabulary. There's a new quality to be had.

'Tass' is what it is, and *Tonetown* is where it's at. And you can get it at the latest adventure from Activision, *Tass Times in Tonetown*.

In Tonetown, however, being tass is not merely desirable, it's essential for your survival. Because if you're not tass, you're a tourist and local mean machine Franklin Snarl has a way with tourists.

He feeds them to his Crocagators.

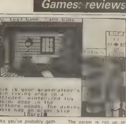
If this is beginning to confuse you, let's backtrack a little. You start at the deserted home of your friend Gramps – deserted, that is, except for his faithful dog, Spot.

Your first task is to find the transdimensional doorway to Tonetown where Gramps has disappeared.

In Tonetown you can't do a thing until you get tass. That means buying new clothes, a new hairstyle, and getting a job. Check out the copy of the Tonetown Times that came free with the game for some ideas.

Once you stop looking like a tourist, you'll find the locals helpful – hang out at Fast Freddie's, check out the Dag-lets concert in the park. But watch your back.

Your sidekick for the duration is good ol' Spot. But in Tonetown Spot is better known as Ennio, ace reporter for the Times, six times winner of the Inter-Moonal Ultra Journalism award, and known locally as The Legend.



```
This is your grandfather's
main living area in a
secluded, winterized log
cabin, deep in the
northern woods. The dining
table has an order slip
           [More]
```

As you've probably gathered, *Tass Times* is an adventure like no other. It's illustrated, and animated, with an excellent musical soundtrack too (wander into the Wetlands and you'll get a close encounter with a Crocagator to the accompaniment of mean and moody Jaws-like music).

There are traditional adventure puzzles to be solved – a deep, dark well where you'll need a light, for example – but Tass Times is original to the nth degree.

The parser is not up to Infocum standards, the graphics are no match for *The Pawn* but *Tass Times* can hold its head up in any company. Don't be a tourist – get with what's tass.

Popular Appeal ◆ ◆ ◆ ◆

Peter Worlock

Program *Tass Times in Tonetown* **Micro** Commodore 64/128 and Atari ST, disc only **Price** C64 £19.99, ST £24.99 **Supplier** Activision, 23 Pond Street NW3

A different game

Why is it that new snooker or pool games always have 'The Entertainer' as their theme tune? After loading up Electronic Pool from microdeal guess what was the first thing to issue forth from the monitor's speaker?

If you were expecting a game of eight ball Pool then you would be in for a disappointment because EP only has seven (including the white). Initially I groaned at this but then I realised just how boring that would be as a game and how much better *Electronic Pool* is because it's different.

What you have here are the six balls and the six pockets numbered from one to six. The game is all about points. So, if you sink the six ball in the pocket labelled four, then you score 6 × 4 × 10 points. Just to keep things interesting once a ball is potted the numbers on the holes move round and if you're playing against someone over a set number of frames (one to eight) then all the points scored are multiplied by the frame number, including those four fouls.

In the one player game you are given three 'lives' (so to speak), to score as many points as possible, thus registering in the Hall of Fame (not permanently however – boo, hiss). Committing a foul or failing to pot a ball on three consecutive shots costs you a life.

The algorithms concerning ball movement and reaction are generally very good with most shots going where you aimed.

Disappointingly, Electronic Pool utilises none of the ST's advanced abilities, but is still a fairly entertaining game.

Popular Appeal ◆ ◆ ◆

Duncan Evans

Program *Electronic Pool* **Micro** Atari ST **Price** £19.95 **Supplier** Microdeal, PO Box 68, St Austell, Cornwall PL25 4YB

A weak and pathetic effort

Epyx obviously have a thing about flogging a dead horse. Witness *World Games* – the follow up to *Summer Games*, *Winter Games* and *Summer Games 2*.

This time you travel by jumbo around the world to various locations which bear little resemblance to reality to compete in weightlifting, barrel jumping, cliff diving, slalom skiing, log rolling, bull riding, caber toss and sumo wrestling (of all things).

Weightlifting in deepest Russia is a fairly bland affair, no crowds outside the hotel at midnight keeping you awake and no KGB agents giving you strange parcels at the airport.

Bull riding, caber tossing and log rolling are basically garbage, the graphics being amazingly uninteresting.

Cliff diving in Acapulco is good fun, the impact of the diver against the rocks when he mistimes his dive and the accompanying thwak is almost painful to watch.

Slalom skiing, sumo wrestling and barrel are all done competently but this is hardly good enough. Indeed, the entire package has the feel of something knocked out in a hurry before people get completely pissed off with sports simulation.

Popular Appeal ◆

Duncan Evans

Program *World Games* **Price** £9.95 **Micro** C64 **Supplier** US Gold, Unit 10, The Parkway Industrial Estate Centre, Heneage Street, Birmingham B7 4LY.

Sinclair QDOS Companion

The QDOS Companion by Andrew Pennell, one of the most [illegible] authors on the QL, is essential reading if you are interested in programming the QL in machine code. It describes all the features of QDOS, and gives details of all the TRAPs and Vector calls. It includes details on how to access the keyboard, screen, serial ports etc. from machine code, how to communicate with the 8049 co-processor, and how to write multi-tasking programs, and much more. £8.95

Machine Code Programming on the Sinclair QL

This book is a guide to writing machine code using the 68008 assembler on the QL. It starts with the very basics with a description of binary numbers, and finishes with details on how to link in machine code routines as new Super Basic keywords, and the creation of jobs. Ideal for the beginner to QL Machine Code. RRP £7.95 £4.00

QL Assembler Workbench

This program by Talent combines a full-screen editor, assembler, monitor and disassembler for the QL at a very low price. Features include full screen editor, one or two pass assembler, trace code, set registers, search, move, fill, step and channel control, and lots more. RRP £24.95 £21.00

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Cashing in on the public domain

If you own an IBM-PC compatible, Marcus Rowland can tell you where to get some reasonably good software for cheap

It's now possible to buy a complete IBM-PC compatible computer at less than last year's price for an eight-bit home system with monitor and drives. With the arrival of Amstrad on this particular scene, interest among individual users, as well as small business users, is soaring.

> *"Some of these programs appeal to special interests – a few are original or provide cheap alternatives to commercial products"*

A problem which will probably continue for some time is the fact that PC software prices range from expensive to exhorbitant. While manufacturers have begun to produce more reasonably priced packages, under pressure from Alan Sugar and Amsoft's own pricing policy, they are still far more expensive than their eight-bit home equivalents.

One alternative is the cheap and free software distributed by special interest group (Sig) libraries. All of the software in these libraries is either public domain or freeware. Public domain software is available without any obligation; the user is free to copy it, modify it, and pass on copies at will. Freeware is also readily available, but there are usually a few conditions to its use.

In general, the author hopes to be paid for programs if they are useful, and asks users to pass on all of the original unmodified program (including subsidiary files and documentation, if it is on the disc) if copies are given away.

In return, registration of a program is usually rewarded with the latest update of the program, often including source code or enhanced features.

Some of these programs are too bad for commercial distribution, others appeal to special interests. A few are original or provide cheap alternatives to commercial products. Nearly all are American. Usually there are no guarantees of reliability or compatibility with any given hardware or operating system configuration.

The most important open-access PC libraries are probably the American PC-Sig and PC-Blue collections, and Britain's PCBBUK (PC Bulletin Board UK) library. Several British suppliers have access to these collections. Usually it costs £1.50 or £2.00 to have the contents of one library volume (360K) copied to a formatted disc, plus postage, though this can vary between different suppliers. All now charge a membership fee.

The IBM-PC compatible

Many of the programs in these libraries are bug-ridden or otherwise useless; the selection below covers software I've liked enough to keep. It also reflects my own interests, since I don't use financial programs or spreadsheets they aren't covered, but I've probably given word processors and ancillary programs a little more attention than they deserve.

Most of the volumes mentioned include additional programs, of varying quality. All of these programs include some documentation, though the quality is very variable.

Programs were tested on a 640K IBM PC with a colour card and RGB monitor, using PC-DOS 2·1, and were also tested for compatibility with *Sidekick*, a popular memory-resident program that is a good test of software bugs. The first two have also been tested (fairly briefly) on the new Amstrad PC; however, in the crush of the *PCW* show it wasn't possible to test all programs comprehensively. They were not, for instance, tested with Gem loaded. All are claimed to run in 256K or less.

Probably the most famous Freeware program is *PC-Write*, a word processor by Bob Wallace (Quicksoft). The current version (2·6) has a maximum file size of 62K, approximately 45 double-spaced pages, and is fast and moderately user-friendly.

Unfortunately this program tends to suffer compatibility problems with each new release; there always seem to be differences between control keys, embedded control codes, and the like.

Features of this release include split-screen and multiple document editing, DOS commands from the program, mail merge, document merge (to allow final documents much larger than 62K), printer control codes, and an extremely wide range of configuration options, covering every aspect of program operation, display, and screen control.

The main limitation is that this isn't a "what you see is what you get" program; text is only formatted when it's printed, and page breaks aren't shown on-screen. There is a 41-page manual supplied as a text file on the disc; this isn't the complete manual, which is supplied on payment of a $75 (around £55) registration fee, along with the latest version of the program and its source code.

If someone registers a copy of your registered disc you'll be sent $25 (about £18); give away enough copies and you make a profit! Versions up to 2·55 were supplied with full 200-page documentation, as a compressed text file, and are still available. *PC-Write Version 2·55* is on PCBBUK volume 63, version 2·6 on PCBBUK volume 201. Earlier versions can be found on other discs. All versions support a wide range of monitors and printers.

While *PC-Write* covers most aspects of word processing, neither gives an on-screen display of fonts, except by showing a marker for each control code. *Chiwriter*, by Horstmann Software Design, remedies this omission, but is less than ideal in other respects.

It shows 10 fonts on-screen (on the

continued on page 20 ▶

▶ continued from page 19

PC, in mono graphics mode) These fonts include normal text, bold, italic, old English, Greek, and a range of other scientific and mathematical symbols.

It's advertised as a scientific word processor, and can assemble complicated multi-level equations. The procedure isn't particularly simple, but the results are extremely good, ranging from draft quality to a high-resolution print mode that takes several minutes per page but produces extremely impressive text.

The main snag of this program is the author's method of persuading users to buy the program; it displays a 30 second advertisement as it loads, and on every five thousandth key press. Users who register the program get a version without the advertisement.

There also seems to be a bug in the printer configuration program supplied; when run it scrambles the configuration data on the disc, making the program abort as it loads Luckily the default setting is for most Epson dot matrix printers, and should be suitable for a wide range of machines.

Finally, the text display isn't particularly clear on a standard IBM graphics monitor and other screens with the same resolution (probably including Amstrad)

Full registration of *Chiwriter* costs $69.95 (about £50), with further payments needed for Hercules and EGA graphics cards, popular alternatives to the standard IBM colour graphics display Registered users get additional printer support, the latest version of the program, an editor for additional fonts, and a full manual As it stands this program may not be a good alternative to *Microsoft Word Junior*, unless you particularly need the more specialised graphics it provides. *Chiwriter* is on PC-Blue volume 173.

PC-Deskmate is a memory-resident program designed as a replacement for *Sidekick*, offering *Sidekick*'s features of notepad text editor, modem dialler, calendar, and diary, plus additional features such as an alarm clock, disc utilities, and printer control. Not surprisingly, it isn't compatible with *Sidekick*.

Another problem is that it doesn't save text files in Ascii format, which makes it difficult to use this program to extract text from one file and pass it to another (a common use for *Sidekick*). I wasn't able to test this program on an Amstrad, and would advise users to be fairly cautious. Registration is $25 (£18). *PC-Deskmate* is on PC-Sig volume 133.

Three By Five (Softshell Corporation) is an unusual database package, designed to search through documents for references and create a report or separate files based on the documents it checks It can cope with a wide range of files, including Ascii, *Wordstar*, and the like. It also has word processor facilities and can be used to edit documents as it searches them

One unfortunate aspect of this program might rule it out for some users, it resets the printer as it loads, and anyone who uses a print spooler or buffer may find that they can't use it during a long print run *Three By Five* is on PCBBUK volume 173, with documentation and sample files. The author asks users to register their copies, but doesn't seem to ask for any fee.

Ultra Utilities by Freesoft is a collection of disc tools, including a disc zapper, a file recovery program, a specialised formatting routine, and an optimiser. All seem to work well, though they require some knowledge of the operating system and machine code for safe use Bearing this in mind, it's always advisable to work on backup copies of discs; various utilities allow safe copying of a corrupted disc before salvage is attempted Registration costs $40 (£28), with the benefits of telephone support (not particularly useful in Britain) and $15 refunds if copies of your disc are registered in turn. This package can be found on PC-Sig volume 245, along with a database by the same authors.

Ladybug by David N Smith is a limited implementation of Logo incorporating graphics (including some extra commands) and sound, but omitting list manipulation, the ability to save screen images to disc, and variable numbers of parameters to primitives The disc holds 54 pages of documentation, and some prepared subroutines. *Snowflake*, for example, draws a lovely fractal pattern My only criticism is that it runs fairly slowly; I've seen implementations for other computers that worked at double or triple the speed, and the turtle routines in *Turbo Pascal* are faster still Registration costs $35 (£25), no benefits are specified *Ladybug* is on PC-Sig volume 94

Other languages available through user supported channels include several machine code assemblers, Lisp (*Xlisp*, on PCBBUK volume 70), Forth (*Fig-Forth*, on PC-Blue volumes 54–5, *Laxton & Perry Forth* on PC-Sig volumes 263–4), Prolog (PC-Sig volume 417), Pascal (PC-Sig volumes 424, 510, and 540), and C (*Small C*, PCBBUK volume 181)

Many of these implementations diverge from industry standards or are limited in other ways; for example, the two Pascal compilers are mutually incompatible with each other and with the most common compiler, *Turbo Pascal*, while the third Pascal program mentioned is an interpreter that's incompatible with anything other than a restricted subset of the language, but allows on-screen debugging and single-step operation of programs

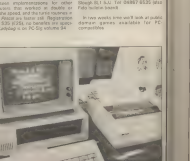
There is also a huge range of discs containing useful subroutines for various languages, most are for *Turbo Pascal*, followed by C and Basic, with other Pascal variants trailing in fourth place.

This survey has necessarily been extremely brief; for example, I've not mentioned any of the huge range of communications programs available in the public domain, from simple modem packages to complete bulletin-board systems

More information on these and other programs can be obtained from two organisations

Public Domain Special Interest Group, 138 Holtye Road, East Grinstead, Sussex RH19 3EA Tel 0342 313883 (also Fido bulletin board);
Compulink Users Group, PO Box 263, Slough SL1 5JJ Tel 04867 6535 (also Fido bulletin board)

In two weeks time we'll look at public domain games available for PC-compatibles



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This Disciple is no Judas

One of the problems with the Spectrum is that in order to build up a sophisticated system, you must add on many peripheral units, all of which must plug in to the user port. What's obviously needed is an interface which serves many functions, and if possible offers some new facilities. The Disciple seems to qualify on all counts.

This innocent-seeming unit offers disc drive interfacing, disc program transfer, centronics printer interfacing, networking and dual joystick ports, and costs a lot less than buying all these separately (apart from the obvious increase in ease of use).

The Disciple (awful pun) is similar in appearance to the Sinclair Interface 1, and is in fact compatible with it. It fits on to any Spectrum, via its standard user port connector, and is screwed into place, tilting the Spectrum to a convenient typing angle.

To the right of the unit is the disc drive connector, to the rear are the networking sockets, twin D-type joystick ports, follow-on user port and centronics printer port. On the left are the two control buttons; the inhibitor, which disables the interface's operating system in the case of a clash with incompatible peripherals; and the snapshot switch which can be used to produce screen dumps.

The virtue of the Disciple is that it can be used with any standard disc drive, single or double density, single or double sided, 40 or 80 track, 3 inch, 3½ inch, or 5¼ inch. Likewise, any Centronics printer will do. This is because the operating system, which is initially loaded from cassette, can be tailored to whatever add-ons you have.

The pre-production version of the operating system consists merely of a series of text screens asking you to enter codes to define the type of drive, type of printer, and various options for line spacing, special printer functions, networking features and so on. Once you have defined your system, you can save the file to a formatted disc for future use.

In operation, the system file resides in the Disciple's Ram and so takes up no Spectrum memory space. Unfortunately you must use the inhibit button to disable certain functions if you want to use a microdrive and Interface 1 while the Disciple is attached. The Disciple disc operating system allows up to 800K to be stored on a double sided, double density disc. You can use any disc drive with a standard Shugart connector; typically, a BBC compatible unit.

Up to two disc drives can be used connected, using file names of up to ten characters to store several different types of file; Basic, data arrays, character arrays, machine code, screens, microdrive format or 'snapshots'. The different types of file are identified with a code letter and a display of the file space used, when you list them using the *Cat* command.

The syntax used for the disc drives can be the same as that for microdrives, to make life easier; however, there is a simpler syntax available which addresses the drives using the prefix D1 (or D2). Files can be renamed, copied, erased, autoloaded, and so on. The computer can be reset without disrupting the DOS, and you can also use the Disciple's 'snapshot' button to dump the entire 48K (not 128K) program to a disc. This is of obvious use in creating a disc software library, and in saving programs at crucial points.

Using a printer is pretty straightforward; having defined your operating system in the question-and-answer session, you just use *LPrint* and *LList*. Two positioning commands, *Tab* and *At*, are also provided. It's also possible to produce screen dumps from any program, using the snapshot button and the caps shift key.

Networking allows up to 63 Spectrums to be linked with Disciples, to be linked together in a system sharing master disc drives and printers. The applications, especially for education, are obvious; again, the file serving system is defined in an opening question-and-answer session.

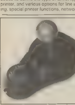
Finally, the Disciple's two joystick ports can be used either as Kempston standard (single stick) or Sinclair (double stick). With a claimed data transfer rate of 125K/second using a single density drive, and access time of one second, the Disciple's most obvious virtue is that it gives Spectrum owners easy access to disc storage. The snapshot facility, printer interface, and joystick ports and networking are big bonuses.

My only reservations about what must be seen as a very desirable purchase are that the pre-production manual and operating system software are pretty primitive – a huge amount of prettifying would be useful – and that both of the review model's switches disintegrated. A dab of superglue needed there, Rockfort.

That apart, I can't think of many Spectrum owners who would not leap at the chance to get their hands on the Disciple.

Chris Jenkins

Product *Disciple interface* **Micro** Any Spectrum **Price** £84.75 **Supplier** Rockfort, 81 Church Road, London NW4 4DP. Tel: 01-203 0191.



The Elite joystick

From traditional sticks . . .

Euromax's latest entries in the joystick stakes cover the range from traditional to totally spaced-out. Both offer something for first-time buyers and experienced games players looking for that little bit extra performance; and since the sticks feature the standard D-connector they can be used with Commodore, Atari and Amstrad micros, plus Spectrums with a suitable interface.

The more conventional stick is the Elite, which has an unusual body shell shape but is in fact quite straightforward and easy to use. The Elite is made in high impact ABS plastic with a steel shaft.

The Elite also features micro-switches, making for precise 8-directional control. The unusual bulbous shape is very comfortable for their left or right hands, and the two fire buttons – a large one for single shot and a smaller one for autofire – have a positive action.

Bound to arouse more controversy is the amazing Joyball. Though it acts exactly the same as a joystick, it looks more like the Chernobyl nuclear plant, with a large spherical controller, a flat dog-leg shaped base and five controls. However, as the Japenglish instructions explain, this is "New weapon beyond joystick! High technological forum based

The paperless office must wait

> *"The basic concept of the Omnireader . . . consists of a flat surface with a ruler attached – place the text to be scanned in a window in the ruler, one line at a time and track the scanner along it"*

There is one simple technological leap that must be accomplished if we're to achieve the paperless office, factory and/or abattoir. Now you may think that dispensing with paper is a matter of getting everybody to communicate with the aid of computers and modems – once that's happened we can just dump all the paper, check?

Well that's not strictly true, firstly because tests in the US have already shown that the current generation of keyboards isn't absorbent enough for the paperless lavatory to become a reality, and secondly because no matter how many of us have the necessary kit there will always be some nerd who insists on bashing out text with the aid of Basildon Bond and John Bull printing set. Now if you've got everything geared to handling digital information, on disc and in Ram, the arrival of paper-based analogue information is decidedly unwelcome.

The point is that the paperless office needs to have an interface to paper if it's to take off – basically, computers need to learn to *read*.

Now they can do this, but it's a complex and expensive process. Page scanners costing several thousand pounds will read in the patterns of letters, compare these to patterns stored in the computer's memory and assign an Ascii value to the letters provided they're recognised. The expense lies in two areas. The method used to read the data on the page has to be highly accurate, and the software has to be flexible enough to recognise a letter in many different typefaces as being the same letter. You may be able to read in italics, but getting a computer to do so can be tricky.

The Oberon *Omnireader* is a valiant – but it must be said failed – attempt to break through the optical character recognition barrier. It was first launched around two years ago at £400, which is still staggeringly cheap for this sort of device, but unfortunately the compromises inherent in cutting the price to this level stopped it from establishing itself. Oberon went bust, but the beast is now on the market again, and at £39.99 is going so well that the vendor has just phoned me up telling me the price has gone up to £49.99.

The basic concept of the *Omnireader* is good. It consists of a flat surface with a ruler attached. Place the text to be scanned in a narrow window in the ruler, one line at a time, and track the scanner along it while holding down the scan button. The *Omnireader* acts as a modem, with baud rates from 300 to 9600, so anything it sends should be receivable with the relevant comms software.

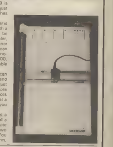
Now the problems. You can only scan one line at a time, and type size and spacing is quite critical, so some text just won't scan. If the device were a lot more expensive it would use stepper motors to take the scanner across the paper at a constant speed, but as it doesn't you need to have a steady hand.

The net result is that you'll only get a completely accurate representation of a line under optimum conditions, and quite often you'll find you have to try a line two or three times before you get it right. You can get the text across into digital form, but you can find that it's taking you as long – or longer – than it would just to retype it. And once you have got it in you'll probably have to run it through a spelling checker and debug it.

So is it any use? The obvious answer is "did Oberon go bankrupt?", but at £40 – er, £50 – it starts to look like an interesting deal, if not a good one. If you seriously think you can do a useful file transfer job on it go and hold your head in a bucket of ice cold water until you feel better, but if you're interested in the technology and want to experiment it really is excellent value.

John Lettice

Product *Oberon Omnireader* **Supplier** Metroheath, 287–289 Whitechapel Road, London E1.



to totally spaced out

upon Game Engineering both the design and colour appeal . . . this forum can respond to your adventural spirit!" Whatever that means, it's right.

The Joyball has four fire buttons, two of which are normal and two of which are autofire. The autofire rate can be switched from 7·5 to 15 shots per second using a slider switch between the ball and the fire buttons.

The increased comfort of the large ball, as opposed to a slim handle, comes into its own; because you need only hold the ball loosely, your hand does not become tired so quickly.

Operating the Joyball takes some getting used to, since it involves learning a whole new set of reactions. However, tried out on a whole range of fast moving arcade games, including *Uridium* and *Sacred Armour of Antiriad*, it proved increasingly effective with practice. Certainly one to to try out if you want to get one up on the neighbours.

Product *Elite/Joyball joysticks* **Micros** Commodore, Amstrad, Atari, and Spectrum with suitable interface **Price** £15.95, £24.95 **Supplier** Euromax, Pinfold Lane, Bridlington, North Humberside
YO16 5XR. Tel: 0262 601006.

The Joyball – no jokes please

Card Index

Iain Tatch

When first run the program asks you if you want to use an existing file or create a new one. Enter either 'E' or 'C' as required. You will be prompted for a filename which can be up to eight characters long but must not include any symbols.

If you are creating a new file you will then be prompted for field lengths (up to 80 characters) and their titles (up to 25 characters). You now have the option of adding a password to your file if so desired.

As the listing is spread over two weeks the remaining instructions are given next week. If you would like a copy of the program send a formatted 3" disc and £2.50 to Iain Tatch, 4 Victoria Road, Chingford, London E4 6BZ.

```
30 REM * INTIALISE VARIABLES *
32 MEMORY,,1,800
35 bel$=CHR$(7)
40 esc$=CHR$(27)
50 inv$=esc$+"p"
60 niv$=esc$+"q"
70 bu$=esc$+"r"
80 eu$=esc$+"u"
90 on$=esc$+"e"
100 off$=esc$+"f"
110 DEF FNat$(x,y)=esc$+"Y"+CHR$(y+32)+C
HR$(x+32)
120 cls$=esc$+"H"+esc$+"E"
125 DIM s$(10),t$(10),f$(10),flen(10):no
f=0
130 REM * SET UP SCREEN *
140 PRINT esc$;"y";cls$;CHR$(134);
150 PRINT STRING$(86,138);CHR$(140)
160 PRINT CHR$(133);" ";inv$;" ";
170 PRINT "Amstrad PCW 8256/8512 Random
Access Card-Index Database (C) September
 1986 I.Tatch "
180 PRINT niv$;" ";CHR$(133)
190 PRINT:PRINT CHR$(131);STRING$(86,138
);
200 PRINT CHR$(137)
210 PRINT esc$;"1# (w"
220 REM * GET FILE NAME *
230 PRINT:PRINT "Will you be using an ex
isting file or creating a new one? (E/C)
 )";
240 f$="EeCc":GOSUB 10000:ft=i
250 PRINT inv$;
260 IF ft<3 THEN PRINT "OLD"; ELSE PRINT
 "NEW";
270 PRINT " FILE" niv$
280 PRINT:PRINT "Filename (up to 8 chara
cters) )";
290 l=8:GOSUB 10100:fi$=s$
300 f1$=FIND$(fi$+".var"):f2$=FIND$(fi$+
".dta")
310 IF ft>2 THEN GOTO 500
320 IF f1$<>"" AND f2$<>"" THEN GOTO 350
330 PRINT:PRINT:PRINT bel$;"Variable and
/or data file not found  (C)hange discs
, (R)e-enter filename or (N)ew file."
335 f$="CcRrNn":GOSUB 10000:IF i>4 THEN
PRINT:GOTO 500
340 IF i>2 THEN PRINT cls$:GOTO 280
345 PRINT "Change discs then press RETUR
N.";:f$=CHR$(13):GOSUB 10000:RESET:GOTO
300
350 OPEN "i",1,fi$+".var"
360 INPUT #1,pw:IF pw=0 THEN GOTO 380
365 PRINT:PRINT "File has a password: pl
ease enter.";
370 pass$=INPUT$(pw):INPUT #1,pw$:PRINT
375 IF pw$<>pass$ THEN PRINT:PRINT bel$;
"Incorrect password ... press RETURN.":f
$=CHR$(13):GOSUB 10000:RUN
380 INPUT #1,nof,nor
385 PRINT:PRINT "File has";nof;"fields.
 Titles.. "
390 PRINT:FOR l=1 TO nof
400 INPUT #1,t$(l),flen(l)
410 PRINT "Field";l;"- Title: ";t$(l);"
. length";flen(l)
420 NEXT l
430 CLOSE 1
440 PRINT:PRINT
450 PRINT "Press RETURN. .";:f$=CHR$(13):
GOSUB 10000
452 totlen=0:FOR l=1 TO nof:totlen=totle
n+flen(l):NEXT l
455 OPEN "r",1,fi$+".dta",totlen
460 FIELD 1,flen(1) AS f$(1),flen(2) AS
f$(2),flen(3) AS f$(3),flen(4) AS f$(4),
flen(5) AS f$(5),flen(6) AS f$(6),flen(7
) AS f$(7),flen(8) AS f$(8),flen(9) AS f
$(9),flen(10) AS f$(10)
470 GOTO 1000
500 REM * CREATE NEW FILE *
510 IF f1$="" AND f2$="" THEN GOTO 550
520 PRINT:PRINT bel$;"A file already exi
sts with this name."
530 PRINT "(C)hange discs, (O)ld file or
 (N)ew name?"
535 f$="CcOoNn":GOSUB 10000
540 IF i<3 THEN PRINT "Change discs then
 press RETURN.":f$=CHR$(13):GOSUB 10000:
RESET:GOTO 300
542 IF i<5 ft=1:GOTO 300
545 GOTO 280
550 PRINT:PRINT "Creating file. ":OPEN
"o",1,fi$+".var"
560 PRINT:PRINT "How many fields (2-10)
 ";
570 f$="123456789":GOSUB 10000:IF i=1 TH
EN i=10
580 PRINT i:nof=i:PRINT
590 FOR j=1 TO nof
600 PRINT "Field number";j;". . Title >
";
610 l=25:GOSUB 10100:t$(j)=s$:PRINT
620 PRINT "                .. Length > ";
630 INPUT flen(j):IF flen(j)<1 OR flen(j
)>80 OR flen(j)<>INT(flen(j)) THEN PRINT
 bel$;GOTO 620
640 NEXT j
650 PRINT:PRINT "Assign a password to th
e file (Y/N) ?";
660 f$="YyNn":GOSUB 10000:IF i>2 THEN GO
TO 700
670 PRINT:PRINT "Enter password (up to 8
 characters) >";
680 l=8:GOSUB 10100:pw$=s$:pw=LEN(pw$)
700 IF pw THEN WRITE #1,pw,pw$ ELSE WRIT
E #1,0
710 WRITE #1,nof,200
715 nor=200
720 FOR l=1 TO nof
730 WRITE #1,t$(l),flen(l)
740 NEXT l
750 CLOSE 1
770 totlen=0:FOR l=1 TO nof:totlen=totle
n+flen(l):NEXT l
777 OPEN "r",1,fi$+".dta",totlen
780 FIELD 1,flen(1) AS f$(1),flen(2) AS
f$(2),flen(3) AS f$(3),flen(4) AS f$(4),
flen(5) AS f$(5),flen(6) AS f$(6),flen(7
) AS f$(7),flen(8) AS f$(8),flen(9) AS f
$(9),flen(10) AS f$(10)
790 FOR l=1 TO nof:LSET f$(l)=" ":NEXT l
792 PRINT:PRINT:PRINT "Creating file wit
h 200 records (more may be added later).
  Please wait..."
800 FOR l=1 TO 200
810 PUT 1
820 PRINT l;CHR$(13);
830 NEXT l
840 PRINT bel$
1000 REM * MAIN MENU *
1005 nor$=STR$(nor):nor$=RIGHT$(nor$,LEN
(nor$)-1)
1010 PRINT cls$:PRINT:PRINT
1020 PRINT "File: ";fi$:PRINT
1030 PRINT "Number of records:";nor
1040 PRINT:PRINT
1050 PRINT bu$;"PLEASE CHOOSE:";eu$
1060 PRINT
1070 PRINT "1 ... Enter/edit data"
1080 PRINT "2 ... Erase a record"
1090 PRINT "3 ... Copy record(s)"
1100 PRINT "4 ... Search file"
1110 PRINT "5 ... Print out file"
1120 PRINT "6 ... Increase number of rec
ords"
1125 PRINT "7 ... Display a record"
1130 PRINT "8 ... Finish editing"
```

```
1140 PRINT:PRINT "What is your choice ?"
;
1150 f$="12345678":GOSUB 10000
1160 ON i GOTO 2000,3000,4000,5000,6000,
7000,9000,9000
2000 REM * ENTER/EDIT *
2010 PRINT cls$:PRINT bu$:"ENTER OR EDIT
 DATA";eu$
2020 PRINT
2030 PRINT "Which record (1-";nor$;
2040 INPUT") >",rec%
2050 IF rec%<1 OR rec%>nor THEN PRINT be
l$:GOTO 1000
2060 PRINT cls$:PRINT
2070 PRINT "File: ";fi$;"     Record:";r
ec%;CHR$(8);"/";nor$:PRINT
2075 GET 1,rec%
2080 FOR 1=1 TO nof
2090 PRINT t$(i);" (";f$(i);")"
2100 NEXT i
2110 PRINT:PRINT "Enter data, or press R
ETURN to leave antart."
2120 FOR j=1 TO nof
2130 PRINT FNat$(LEN(t$(j))+2,j+3);
2140 l=flen(j):GOSUB 10100
2150 IF s$<>"" THEN LSET f$(j)=s$
2160 PRINT CHR$(13);t$(j);" (";f$(j);")"
2170 NEXT j
2180 PUT 1,rec%
2190 PRINT
2200 PRINT "(R)e-enter this record, (E)d
it another record or (F)inish editing ?"

2210 f$="RrEeFf":GOSUB 10000
2220 IF i<3 THEN GOTO 2060
2230 IF i<5 THEN GOTO 2010
2240 GOTO 1000
3000 REM * ERASE *
3010 PRINT cls$:PRINT bu$:"DELETE A RECO
RD";eu$
3020 PRINT:PRINT "Erase which record (1-
";nor$;
3030 INPUT "> ",rec%
3040 IF rec%<1 OR rec%>nor THEN PRINT be
l$:GOTO 1000
3050 PRINT:PRINT
3060 GET 1,rec%
3070 FOR i=1 TO nof
3080 PRINT t$(i);" (";f$(i);")"
3090 NEXT i
3100 PRINT:PRINT "Confirm deletion of re
cord";rec%;"(Y to delete, N to keep)"
3110 f$="YyNn":GOSUB 10000
3120 IF i>2 THEN PRINT:PRINT "Record ";i
nv$;"not";niv$;" deleted.":GOTO 3200
3130 FOR i=1 TO nof
3140 LSET f$(i)=""
3150 NEXT i
3160 PUT 1,rec%
3170 PRINT "Record ";inv$;"deleted.";niv
$
3200 PRINT:PRINT "Press RETURN";
3210 f$=CHR$(13)
3220 GOSUB 10000:GOTO 1000
4000 REM * COPY *
4010 PRINT cls$:PRINT bu$:"COPY RECORDS"
;eu$
4020 PRINT
4030 PRINT "Record to be copied (1-";nor
$;
4040 INPUT ") >",rec1%
4045 IF rec1%<1 OR rec1%>nor THEN PRINT
bel$:GOTO 1000
4050 PRINT
4060 PRINT "Copy record";rec1%;"to which
 record? (1-";nor$;
4070 INPUT ") >",rec2%
4080 IF rec2%<1 OR rec2%>nor THEN PRINT
bel$:GOTO 1000
4090 PRINT
4100 PRINT "Confirm copy";rec1%;"to";rec
2%;" (Y/N)."
4110 f$="YyNn":GOSUB 10000
4120 IF i>2 THEN PRINT bel$:GOTO 1000
4130 GET 1,rec1%
```

All Sorts

Mike Lloyd

Sorting routines are an essential feature of many computer programs and a great deal of time and effort is expended developing more efficient sorting algorithms. One of the fastest, the Quicksort, is recursive and therefore cannot properly be implemented on most home computers. Although this is no drawback to the QL it is not particularly popular because the procedure listing is lengthy and recursion is relatively slow and uses large amounts of RAM.

To provide an efficient but non-recursive sorting routine for the QL I have developed a variation of the ripple sort technique which could easily be converted to most other Basic dialects.

During sorting, most time is wasted shuffling values into and out of the array. Ripple sorts reduce this shuffling by keeping a value in a temporary store until the correct position in the list is found for it. This means that the routine makes only a single pass through the array. My variation helps in finding the correct place for each value in turn.

The quickest way of finding the correct place for a value within a sorted list is to divide the list in half and test to see which half should hold the target value. That portion of the list is then divided into two and the test repeated until the actual position is found. This is known as a binary search.

The Mikesort takes the first unsorted item in the array as its target value. The array elements before it in the list are those which have been sorted into order and this area of the array is tested using the binary search method to determine where the target value is to be placed. The target value is removed to a temporary variable, thus creating a space in the array. The array elements between the target value's old position and its destination are shuffled down one space. The target value is then moved from the temporary variable into its proper place.

Mikesort works without variation on arrays of any variable type (integer, string or real number). This will not be possible on other computers and an appropriate variable type for *temp$* will need to be used. Conversion should also take into account the SuperBasic function *Dimn* which returns the number of elements in an array.

Listing 1

```
100 REMark EXAMPLE CALL
110 DIM numbers (20)
120 FOR v = 1 TO 20: numbers (v) = RND(
0 TO 99)
130 PRINT "Unsorted:"!numbers!
140 mikesort numbers
150 PRINT \"Sorted:   "!numbers!
160 STOP
```

Listing 2

```
200 DEFine PROCedure mikesort (array)
204 LOCal x, y, loop, mid, hi, lo
208 FOR x = 2 TO DIMN (array)
212   IF array (x) < array (x-1)
216     temp$ = array (x)
220     lo = 0: hi = x-1
224     REPeat loop
228       mid = INT ((hi+lo)/2)
232       IF hi-lo < 2
236         mid = mid + (array(mid) < t
emp$)
240         EXIT loop
244       END IF
248       IF array (mid) < temp$
252         lo = mid
256       ELSE
260         hi = mid
264       END IF
268     END REPeat loop
272     FOR y = x TO mid+1 STEP -1
276       array (y) = array (y-1)
280     END FOR y
284     array (mid) = temp$
288   END IF
292 END FOR x
296 END DEFine mikesort
```

Programming: Commodore 64

Joystick Test

Peter Graves

The following program for the Commodore 64, or C128 in C64 mode, allows you to test the joystick port 1 to see whether it is working correctly.

Also, by examining the bit status of the memory location 56321 which is displayed on the screen you can determine which values relate to which joystick positions.

```
100 REM JOYSTICK REGISTER OPERATION      BY PETER GRAVES
110 POKE 646,1:POKE 53281,6:POKE53280,6
120 GOTO  1000
130 PRINT "J":PRINT TAB(11) "■■JOYSTICK OPERATION■■"
140 PRINT TAB(7) "            F ] ← [ 1"
150 PRINT TAB(7) "BIT  7 6 5 4 3 2 1 0"
160 PRINT TAB(11) "┌┬┬┬┬┬┬┬┐"
170 PRINT TAB(11) "│1│1│1│ │ │ │ │ │"
180 PRINT TAB(11) "└┴┴┴┴┴┴┴┘"
190 PRINT TAB(7) "■DECIMAL ":PRINT "■■■NOW OPERATE THE JOYSTICK IN PORT 1!"
200 POKE1410,(PEEK(56321)AND1)+48:POKE1408,(PEEK(56321)AND2)/2+48
210 POKE1406,(PEEK(56321)AND4)/4+48:POKE1404,(PEEK(56321)AND8)/8+48
220 POKE1402,(PEEK(56321)AND16)/16+48
230 PRINT"■■■■■■■■■■■■■■■"TAB(15);PEEK(56321);"= PEEK(56321)":GOTO 200
1000 REM
1010 PRINT CHR$(142)
1020 PRINT "■■■■■■■■■■■SETTING UP - WAIT A MOMENT!"
1030 POKE52,48:POKE56,48:CLR:POKE56334,PEEK(56334)AND254:POKE1,PEEK(1)AND251
1040 FORI=0TO1023:POKEI+12288,PEEK(I+53248):NEXT:POKE1,PEEK(1)OR4
1050 POKE 56334,PEEK(56334)OR1:POKE 53272,(PEEK(53272)AND240)+12
1060 FOR N=12520 TO 12527:READ A:POKE N,A:NEXT
1070 FOR N=12504 TO 12511:READ A:POKE N,A:NEXT
1080 DATA 0,8,12,254,254,12,8,0
1090 DATA 0,24,24,24,126,60,24,0
1140 GOTO 130
```

Programming: Spectrum

Championship Bowls

Colin Speed

Championship Bowls is an all machine code, icon driven game for two players. The object, as I'm sure you're well aware after the bowls on the TV recently, is to finish an end with your bowl(s) closest to the jack.

The game supports a variety of joysticks or the keyboard can be used as follows.

Left – Q,E,T,U or O.

Right – W,R,Y,I or P.

Fire – Any key on the bottom two rows.

The six icons at the bottom of the display have the following functions – change shot direction, increase power, decrease power, select backhand (default), select forehand, release bowl.

The listing is in two parts, the final section coming next week.

```
10 CLEAR 59999: LET add=60000
  20 FOR n=1 TO 146
  30 READ a$,a: LET tot=0
  40 FOR f=1 TO LEN a$ STEP 2
  50 LET x=16*(CODE a$(f)-48-7*(a$(f)>"9
")+CODE a$(f+1)-48-7*(a$(f+1)>"9")
  60 POKE add,x
  70 LET tot=tot+x
  80 LET add=add+1
  90 NEXT f
 100 IF tot<>a THEN  PRINT "ERROR IN DAT
A - Line ";n*10+190: BEEP .5,0: STOP
 110 PRINT AT 0,0;"LINE ";n*10+190;" OK"
 120 NEXT n
 130 PRINT '"DATA OK"
 140 PRINT '"Save this code after the BA
SIC''"loader."
 150 SAVE "BOWLS"CODE 60000,4373
 160 STOP
 200 DATA "2A785C22765CCD55F6CD45F821000
0224EF5AF32FEEB3E02CD0116CDA8EA",3559
 210 DATA "CD1BF3CDB0EBCDD1F5CD64F111307
51B7AB320FBCDC6F321FEEB3E01AE77",4626
 220 DATA "CDBCF830C5CDA8F530D018BE21004
```

```
011014C01FF173600EDB03E0F06040E",3000
 230 DATA "1012130D20FBEE1810F50620EB363
E2310FB0E21061F36212310FB363123",2145
 240 DATA "0D20F3062036312310FB03E0F06060
E1077230D20FBEE1810F53E0732485C",2106
 250 DATA "3E10D3FECD26EB21B050115FEB060
5CDECF021D5501164EBCD05F0060923",3735
 260 DATA "1160EBC5CD05F0C110F5231174EBC
DD5F0C9DD2185FB2180F9010506DD36",4266
 270 DATA "0001DD7101DD360213DD7505DD740
6DD360B00DD360C10DD360D10E5C5CD",2842
 280 DATA "EBEEC1E11120001979C6144F10D6C
9504F5745520404070000000000404",2234
 290 DATA "FF00000000000404FC000000000C
DFFEBCD44ECDD2195FB06092100600DD",2642
 300 DATA "CB00462814DDCB00562807DD7E08A
7280824DD7E08A728012C111000DD19",2388
 310 DATA "10DF7DA7C87CA720CC11E803197AB
320FB18C22130F91148F97CAA577DAB",3684
 320 DATA "5F3AFEEBA729032148F9DD21A5FB0
608DD360000DD360B00DD360C0CDD36",3025
 330 DATA "0D0CDD7505DD74067CAA677DA05FD
5111000DD19D1109BC900EFE320E51B",3406
 340 DATA "04E31FE50438CDA22DC43CECDDCB0
05EC43CEC216A00A7ED42E5CDA22DC4",3911
 350 DATA "3CEC210500A7ED42DD2181EFDD750
0DD7401D1DD7302DD7203C9782F477E",3547
 360 DATA "2F4F03C9DD2195FB0609DDE5C5CD5
BECC1DDE1111000DD1910F0C9DDCB00",3977
 370 DATA "46C8DDCB004ECA55EDDD7E0BA7C8D
D350BDD7E01DD770EDD7E02DD770FDD",3933
 380 DATA "CB0056287EEFE320E51B04E31FE50
4E3E40FC30238CDA22DC43CECDDCB00",3755
 390 DATA "5EC43CECC5CDA22DC43CECDDE5DD2
181EFDD6E00DD6601097CA75DDDE1C1",4446
 400 DATA "C2FEED7DDD860CDAFEEDFEF8D2FEE
DDE5DD2181EFDD6E02DD6603097CA7",5120
 410 DATA "DDE1C2FEED7DFEA7D2FEEDFE20DAF
EEDDD960DDAFEEDFE20DAFEED55D5CD",5964
 420 DATA "EBEED1DD7301DD7202165 6CDEBEED
DCB00A6DD7E03A7FA15EDDD8601FC[illegible]",4534
 430 DATA "ED1806DD8601D4C7EDDD860CDCC7E
DFEF8D4C7EDDD7E02DD8604FEA7D2D3",4994
 440 DATA "EDDD960DDAD9EDFE20DAD9EDD6CB0
066C2E1EDDD7E01DD8603DD7701DD7E",4827
 450 DATA "02DD8604DD7702CDEBEEDDCB00CE7
AA7C81195FBA7DDE5E1ED52201B22B0",4347
 460 DATA "5CDD6E01DD66020606E5111000DD1
9CD03EEE1DC7AEE10F1C9DDE5DD22B0",3861
 470 DATA "5CDD2195FBDD6E01DD6602DDE1DDE
5CD03EEDD6E01DD6602DD2195FBC7A",4398
 480 DATA "EEDDE1DD6E01DD6602DD2195FB060
8E5111000DD19CD4CEEE1DC7AEE10F1",4098
 490 DATA "C9AFDD960CDD7701DDCB00E6C9DD3
602A71808DD7E01C617DD7702DDE5E1",4029
 500 DATA "DD360300DD360400DD360B001195F
BA7ED52CA55E5DD360C00C9CDEBEE18",3448
 510 DATA "DEA7DDCB0046C8DD5E01DD56027C9
2677D936FA7FA21EEFE0DD07CA7F22A",4219
 520 DATA "EEED44FE0DD085FE13C9FE09D085F
E11C9ED44FE09D06F7CA7F245EEED44",4733
 530 DATA "FE0DD085FE11C9FE09D085FE0BC9A
7DDCB0046C8DD5E01DD56027C92677D",4134
 540 DATA "936FB4C87CA7F267EEED4467FE0DD
07DA7F272EEED446FFE0DD084FE13C9",4778
 550 DATA "3A485C1F1F1FC50E05F3EE10D3FE0
66410FE0D20F5C1FBDD7E0195CB2FDD",3571
 560 DATA "7703DD7E0294CB2FDD7704DDE5DD2
AB05CDD7E08CB2FDD7708DDE1DD5E0B",3925
 570 DATA "CB2BBB30017BDD770BA7C0DD340BC
93EBF9047795FCB3FCB3FCB3F4F79E5",3711
 580 DATA "07C6406778E6C01F1F1F846778E63
81717816F78E607C9DD4E01DD4602CD",3293
 590 DATA "C5EEED44E607DDE508DD4E0DDD460
2DD5E05DD5606D5DDE1E5D90600E1DD",4230
 600 DATA "5E00DD23DD5600DD2308F508F1281
30E80CB23CB12CB113D20F779A6B047",3041
 610 DATA "79AE77237AA6B0477AAE77237BA6B
0477BAE77C5D9D1012808CD52EFE5D9",4042
 620 DATA "E118C0DDE1C9D578A7200911E017E
D52D106BFC9F5E607280524F105D1C9",4038
 630 DATA "F1FE402006112000191BF2FE8020F
611E006A7ED5218E60000000021ADF0",3038
 640 DATA "36002336012336003EAC324EF03EF
F328E5C32905CFD3657030EAC0652C5",2590
 650 DATA "CD05F006047EB1A9772410F9C10C1
0EFAFCD4FF0CDE0F0CD06F2CD27F221",4152
 660 DATA "C0EFE5DD7E01C606FE05D8FE15DA7
6F0FE19D8FE29DA31F0FE2DD8FE3DDA",4983
 670 DATA "13F0FE41D8FE51DAE0F0FE55D8FE6
5DAFFF0FE69D8FE79D03AADF0CD4FF0",5587
 680 DATA "C0EBEEE1C90615CDC5EE0E80C847C
B3916FCD93A4EF0FEAD04F3A324EF0",4440
 690 DATA "CD05F006047EB1A9772410F91C00
5CD80F0C93A4EF0FEFD04F3A324EF04F",3996
 700 DATA "CD05F006047EB1772410FA1C005C
D80F0C9A02128F15FCB221600194E23",3200
 710 DATA "46F5C52654E6BC05E22C11E01160
1CB792604CBB916FFCD8A245109FD06",2549
 720 DATA "57033AAEF04F3AADF0C5CD4FF9C18
1FE1E3015CD4FFC93A4F011F4011B7A",3906
 730 DATA "B320FB11D6005CD80F0C991F53AAEF
0E24432AEF0F1180E0601003A485C0B",4058
 740 DATA "2FCB2FCB2FF3426E10D3FE4B0D20F
D10F6FBC9E56F2600292929ED5B365C",3637
 750 DATA "19EBE1E506081A77132410FAE1C9A
F32AFF021F150110EF1060D051AC5CD",3546
 760 DATA "C7F0C123D11310F4119A35CDB0F0C
93EFF32AFF021F150111BF1060D180E",3887
 770 DATA "4241434848414E442053484F54464
F524548414E442053484F54060F080E",1882
 780 DATA "090D0B0C0C0B0C0A0D090E080E070
F060F050F0410031002100110811082",560
 790 DATA "10830F840F850F860E870E880D890
C8A0C8B0B8C0B8D098E068FDD21A5FB",2611
 800 DATA "0600C5DD360001DD360105DD36026
ADDE5CD44ECDDE1DDCB00D6DDE5CD85",3982
 810 DATA "EFDDE13AAFF0CB7F20132140FA3AA
1F0A7281F472323232310F91815DD",3372
 820 DATA "CB90DE21D1FA3AADF0A72808472B2
B2B2B2B10F9E52A685C110F0019EBE1",3138
 830 DATA "010500EDB021D6FA010500EDB0EB3
600233600233A4EF0D6AC87E5216400",3007
 840 DATA "5F160019EBE173237223360000360
B2BDDE5CD7CEBDDE1DDCB0096111000",3351
 850 DATA "DD19C105C26AF1C90D2175FBDD360
102DD360213216F9DD7505DD74060D",3667
 860 DATA "360C0FDD36050FCDEBEEC9CD3EF2C
D66F2CB57C81FF5D447F2F11FF5D456",4427
 870 DATA "F2F118E91140061B7AB320FBC9DD7
E01A7C8CDEBEEDD3501CDEBEEC9DD7E",4533
 880 DATA "01FE7400CDEBEEDD3401CDEBEEC93
A1AF3A7280D3DCADAF23DCAEFF23DCA",4687
 890 DATA "FEF2C93EFB0BFE2FE615473EDFDBF
E2FE60A4FAFB0B128023E01F53EFBDB",4386
 900 DATA "FE2FE60A473EDFDBFE2FE6154FAFB
0B128023E0247F1B0F53EFEDBFE2FE6",4180
 910 DATA "1F473E7FDBFE2FE61FB0473EFDDBF
E2FE61F80473EBFDBFE2FE61FB047AF",4118
 920 DATA "B029023E0447F1B02FC9DB1F471FE
6014F7817E602B14F781F1FE604B12F",2953
 930 DATA "C93EF7DBFE47E6034F781F1FE604B
1C93EF7DBFE1F1F1F1FE601673EEFDB",3920
 940 DATA "FE6F1717E604B4677D1FE602B4C90
0DD2185FBDD360106DD3602BD2130F9",3413
 950 DATA "DD7505DD7406DD360C0CDD360D0CC
DEBEE2148F9DD360186DD7505DD7406",3413
 960 DATA "CDEBEE2103441127F4CD70F321134
41132F4CD70F3210E443A4EF5CDA7F3",3744
 970 DATA "211E443A4FF5CDA7F3C91A13471AD
5C5CD80F3C1D1132310F4C9E56F2600",3752
 980 DATA "292929ED5B365C19EBE1E506041A7
7132410FA51E007A7ED4206041A7713",2663
 990 DATA "2410FAE1C90600D60A391104060A3
80304D60AF578C630CD80F3F123C60A",3217
1000 DATA "C630CD80F3C9CD64F43A4DF5A7CA3
DF43E16D73E0BD73E06D73E10D73E07",3858
1010 DATA "D73E11D73E02D73E15D7AFD73A4DF
5C630D73E20D7114FF4AFCD0A0C3A4D",3503
```

Spreadsheet

D Lester

THE
MEANING
OF
THE
UNIVERSE

On with the instructions for this BBC/Electron program

'F' allows the inputting of formula. It takes the form of 'A4 + D7' (as an example). The procedure will handle any formula using '+,−,/,*,(,)'. To save typing out things like A1+A2+A3 . . . +A18 you can use '$A1,A18'

'P' displays the formula contained in the current cell position (if any).

'U' forces an update

'T' toggles between manual updating and auto update.

'<' and '>' decrease and increase the page respectively. The function keys go direct to the corresponding page

'N' names a sheet/file which is used when saving (via the main menu)

'A' toggles between adding new values to old (+ flag) and entering new values absolutely.

'S' puts a copy of the current formula into a buffer for use with the option below

'Copy' copies the buffer contents to a cell. Row changes and column changes are automatically compensated for.

'Escape' returns you to the main menu.

The program is error trapped and queries any drastic decisions.

```
1890IFc(0,y%-2)=0ENDPROC
1900IFc$(a%,y%-2)<>""VDU7:PROCc:PRINTTAB
(19,0)" OK to Overwrite? ":v$=GET$:PROCc
:PRINTTAB(19,0)SPC(18):IFv$<>"Y"ENDPROC
1910PROCc
1920PRINTTAB(x%+1,y%):SPC(9)
1930c$(a%,y%-2)="":b$=""
1940PROCc:PRINTTAB(x%,y%)"?":PROCc:REPE
AT:z$=GET$:b$=b$+z$:PRINTTAB(x%+10-LEN(b
$),y%)b$:UNTIL VAL(b$)>99999.99ORz$>"9"O
Rz$<"."ORLEN(b$)>8
1950IFad=0c(a%,y%-2)=c(a%,y%-2)+VAL(b$)
:ELSEc(a%,y%-2)=VAL(b$)
1960IFc(a%,y%-2)>99999.99c(a%,y%-2)=999
99.99
1970*FX15
1980n=c(a%,y%-2)
1990PROCc:PRINTTAB(x%,y%):SPC(11)
2000@%=&20209
2010z$=STR$(n)
2020IFn=0z$="0.00":I%=4:GOTO2060
2030I%=INT(LOG(n))+4
2040IFINSTR(z$,".")=0z$=z$+".00"
2050IFn<1I%=4
2060@%=&20209
2070PRINTTAB(x%+9-I%,y%);n
2080IFy%<22REPEAT:y%=y%+1:UNTILc(0,y%-2
)=1ORy%=22
2090IFU%<0PROCup:ENDPROC
2100ENDPROC
2110DEF PROCe
2120@%=&20209
2130r=EVAL(c$(xc%,yc%))
2140IFr<1 AND r>-0.01I%=4:GOTO2180
2150I%=INT(LOG(ABS(r)))+4
2160IFr<0I%=I%+1
2170IFr>99999r=99999.99:I%=8:o%=1
2180PROCc:PRINTTAB(xt%-17,yc%+2):SPC(9)
2190PRINTTAB(xt%-I%-9,yc%+2);r:PROCc
2200c(xc%,yc%)=r
2210ENDPROC
2220DEF PROCfma
2230IFc(0,y%-2)=0ENDPROC
```

```
2240@%=&0090A
2250b$="":a$="":ba$="":z$=""
2260PRINTTAB(0,0)SPC(35):PROCc:PRINTTAB
(2,0)" ";CHR$((x%-22)/10+(pb%*2)
+64);y%-2;"= ";:REPEAT:PRINTTAB(7,0)ba$:
:z$=GET$:ba$=ba$+z$:UNTILz$=CHR$(13)ORLE
N(ba$)>29ORz$=CHR$(127)
2270IFz$=CHR$(127)ba$=LEFT$(ba$,LEN(ba$
)-2):PROCc:GOTO2260
2280IFLEN(ba$)>28ba$=ba$:PROCc:ba$="":z$
="":GOTO2260
2290PROCc:fo$=a$+ba$
2300PRINTTAB(0,0)SPC(38):PRINTTAB(3,0)
c$(0,0):PRINTTAB(17,0)CHR$(229)
2310IFLEN(fo$)=0ENDPROC
2320letter=1
2330a$=MID$(fo$,letter,1)
2340IFa$="$"PROCsum:ENDPROC
2350IFa$="." OR a$="/"b$=b$+a$:GOTO2390
2360IFa$>"9"st$=STR$(ASC(a$)-64):b$=b$+
"c("+st$+",":GOTO2390
2370IFa$>"/" AND a$<":" AND (MID$(fo$,l
etter-1,1)>"@" ORMID$(fo$,letter-2,1)>"@
") AND MID$(fo$,letter+1,1)<"0"b$=b$+a$+
")":GOTO2390
2380b$=b$+a$
2390letter=letter+1
2400IFletter=LEN(fo$)+1 THEN 2420
2410GOTO 2330
2420c$((x%-25)/15+1+(pb%*2),y%-2)
=b$
2430IFU%<0PROCup:ENDPROC
2440ENDPROC
2450DEF PROCsave
2460VDU19,1,1;0;:PRINTTAB(11,23);
2470file=OPENOUT LEFT$(c$(0,0),10)
2480FORx=0TO18
2490FORy=1TO20
2500IFc(x,y)=0 THEN 2520
2510PRINT#file,x,y,c(x,y)
2520NEXT:NEXT
2530PRINT#file,0,0,0
2540FORx=0TO18
```

```
2550FORy=0TO20
2560IFc$(x,y)="" THEN 2580
2570PRINT#file,x,y,c$(x,y)
2580NEXT:NEXT:CLOSE#file
2590VDU7;VDU19,1,2;0;
2600PROCmenu
2610ENDPROC
2620DEF PROCload
2630VDU19,1,6;0;
2640*FX16,0
2650INPUTTAB(10,23)"FILE NAME";name$
2660file=OPENINLEFT$(name$,10)
2670REPEAT
2680INPUT#file,x,y,c(x,y)
2690UNTILy=0
2700REPEAT:INPUT#file,x,y,c$(x,y):UNTIL
EOF#file
2710CLOSE#file
2720VDU7;VDU19,1,2;0;
2730PROCmenu
2740ENDPROC
2750DEF PROCsum
2760b$=""
2770I%=LEN(fo$)-1
2780lone$=MID$(fo$,2,1)
2790let$=STR$(ASC(lone$)-64)
2800pb%=0
2810REPEAT
2820pb%=pb%+1
2830IFpb%>8ENDPROC
2840UNTIL MID$(fo$,pb%,1)=","
2850no$=MID$(fo$,3,pb%-3)
2860ltwo$=MID$(fo$,pb%+1,1)
2870IFI%+pb%=10 OR I%+pb%=12nt$=MID$(fo
$,I%,1):ELSE nt$=MID$(fo$,I%-1,2)
2880IFlone$<>ltwo$PROCdi:ENDPROC
2890lp%=VAL(no$)
2900b$=b$+"c("+let$+","+STR$(lp%)+")"
2910lp%=lp%+1
2920IFlp%>VAL(nt$)+1ENDPROC
2930IFlp%=VAL(nt$)+1 THEN 2960
2940b$=b$+"+"
2950GOTO2900
```

```
2960c$(((15+(x%-25))/15)+1+(p%*2),y%-2)
=b$
2970ENDPROC
2980DEF PROCdi
2990lp%=(ASC(?one$)-64)
3000b$=b$+"c("+STR$(lp%)+","+no$+")"
3010lp%=lp%+1
3020IFlp%=(ASC(?two$)-64)+1 THEN 3060
3030b$=b$+"+"
3040IFlp%>(ASC(?two$)-64)+1b$="":ENDPRO
C
3050GOTO3000
3060c$(((15+(x%-25))/15)+1+(p%*2),y%-2)
=b$
3070ENDPROC
3080DEF PROCscr
3090in=0:b$=""
3100X=(x%-10)/15+(p%*2+1):Y=y%-2
3110IFc$(X,Y)=""ENDPROC:ELSE q$=c$(X,Y)
3120PROCc:PRINTTAB(3,0)SPC(7):"Assembli
ng formula...     "
3130FOR lp%=1 TO LEN(q$):pr=0
3140a$=MID$(q$,lp%,1):IFa$="c"in=1:GOTO
3200
3150IFa$="!" AND in=1REPEAT:pr=pr+1:UNT
IL MID$(q$,lp%+pr,1)=","
3160IFa$=")" AND in=1in=0:GOTO3200
3170IFpr=2b$=b$+CHR$((VAL(MID$(q$,lp%+1
,1))+64)):lp%=lp%+2:GOTO3200
3180IFpr=3b$=b$+CHR$((VAL(MID$(q$,lp%+1
,2))+64)):lp%=lp%+3:GOTO3200
3190b$=b$+a$
3200NEXT
3210PROCc:PRINTTAB(1,0)SPC(37)
3220X%=LEN(b$)
3230PRINTTAB(1,0)CHR$(X+64):Y:"=";LEFT$
(b$,32):
3240IFX%>32PRINT"..":G=GET:PRINTTAB(1,0
)SPC(38):PRINTTAB(1,0);RIGHT$(b$,X%-32)
3250G=GET:PRINTTAB(1,0)SPC(38):PRINTTAB
(3,0)c$(0,0):PRINTTAB(17,0)CHR$(229)
3260b$="":ENDPROC
3270DEF PROCcopy
3280b$=""
3290IFco$="S"xp%=(x%-10)/15+(p%*2+1):yp
%=y%-2:fm$=c$(xp%,yp%):ENDPROC
3300PROCc:PRINTTAB(21,0)"  Copying...
":PROCc
3310FOR sp=1 TO LEN(fm$):a$=MID$(fm$,sp
,1):pr=1
3320IFa$="c"REPEAT:pr=pr+1:UNTIL MID$(f
m$,sp+pr,1)=",":ELSE3360
3330a$=MID$(fm$,sp+2,pr-2):sp=sp+pr-1
3340IFVAL(a$)=xp%a$=STR$(INT((x%-10)/15
+(p%*2+1)))
3350a$="c("+a$:GOTO3400
3360IFa$=","REPEAT:pr=pr+1:UNTIL MID$(f
m$,sp+pr,1)=")":ELSE3400
3370a$=MID$(fm$,sp+1,pr-1):sp=sp+pr
3380IFVAL(a$)=yp%a$=STR$(y%-2)
3390a$=","+a$+")"
3400b$=b$+a$:NEXT:c$(((15+(x%-25))/15)+
1+(p%*2),y%-2)=b$:PRINTTAB(21,0)SPC(15):
ENDPROC
3410DEF PROCc
3420IFf%=1f%=0:ELSEf%=1
3430IFb%=128b%=129:ELSEb%=128
3440COLOURf%:COLOURb%:ENDPROC
3450DEF PROCp
3460lp=0:lim=12
3470VDU2,27,1,15
3480*FX3,10
3490FOR x=lp+0 TO lp+lim:PRINTTAB((x-lp
)*10+3)c$(x,0);
3500NEXT:VDU13
3510FOR y=1 TO 20
3520PRINTTAB(0)c$(0,y);
3530FOR x=lp+1 TO lp+lim:PRINTTAB((x-lp
)*10+3);c$(x,y);:NEXT:VDU13:NEXT:FORpp=1
TO 14:PRINT" ":NEXT
3540IFlp<12lp=12:lim=6:GOTO3490
3550*FX3,4
3560VDU3:VDU7:PROCmenu:ENDPROC
```

IBM COMPATIBLE MACHINES

Bondwell PC BW34 640K RAM dual [illegible] 360K 5¼" drives 12" green monitor Bundles MS DOS-GW basic
RRP £688.85 WAVE £603.00 (a)

Bondwell PC BW36 Specifications as BW34 except single drive + 20Mb Winchester hard disk
RRP £1148.85 WAVE £1025.00 [illegible]

HARDWARE

	RRP	WAVE
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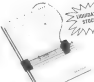

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This toolkit contains everything you need to create fast animated arcade games on your QL. It also contains extra routines to allow you to produce multi-tasking tunes like the ones found in all the best arcade games! You can have up to 32 sprites all of which can have up to 16 frames of animation. Collision detection is also provided and of course it goes without saying that our sprites are some of the fastest and smoothest around. A sprite designer is also included.

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This is probably one of the most original and interesting packages ever written for the QL. Using this package you can turn your QL into a sort of primitive digital synthesiser. The package actually allows you to draw sounds on your QL screen and then play them back either forwards or backwards in whole or in part, so if you're at all interested in sound synthesis or you just like making silly noises then this is the package for you (and there is also a special program included to help you get better acquainted with the super basic beep command (saves hours of messing about trying to find the sound you want).

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Pine Tree Generator

D C Nevill

This QL procedure prints a pine tree at a given position (*x,y*) and of a given height (*l*) on the screen.

The procedure may be used within a loop putting random values into these parameters to produce landscapes of trees. Screens like this may be useful in games or other programs requiring complex graphics.

```
100 DEFine PROCedure Pine(x,y,l)
110 LOCal s,yp,bl,a,xf,yf
120 LINE x,y TO x,y+l
130 FOR s = 1 TO 10
140      yp = y+l-s*l*6.6E-2
150      bl = l/3-(10-s)/10*l/3
160      a  = 45-(10-s)*4.5
170      a  = RAD(a)
180      xf = x-SIN(a)*bl
190      yf = yp-(bl^2-(SIN(a)*bl)^2)^.5
200      LINE x,yp TO xf,yf
210      LINE x,yp TO x+(x-xf),yf
220 END FOR s
230 END DEFine Pine
```

Quick Sort

J E Mucklow

This sorting program was written on an Atari ST but will work on other computers with very little modification. The variables are as follows.

A=Outer loop, B=Inner loop, C=Array containing numbers to be sorted, L=Upper limit of array, T=Temporary variable and M=Position of top value of array in B loop.

```
10 FOR A = 1 TO L
20 M = A
30 FOR B = A TO L
40 IF C(B) > C(M) THEN M = B
50 NEXT B
60 T = C(M):C(M) = C(A): C(A) = T
70 NEXT A
```

Triumph Adler Dump

D O Nevill

The procedure for the QL allows a screen to be printed on the Triumph-Adler daisywheel printer operating in graphics mode.

The routine assumes that the printer is connected using a standard serial to parallel Centronics interface operating at 9600 baud.

The programme take approximately 10 minutes to run.

```
100 REMark *** S C R E E N   D U M P ***
110 REMark *** QL to TRD7020 Printer ***
120 DEFine PROCedure Dump_Screen
130 LOCal r$,b$,l,r,c,w,b,z:BAUD 9600:OPEN #3,ser1
140 r$=CHR$(27)&CHR$(51):b$="        ":l=131070
150 FOR r=0 TO 255
160   PRINT #3,r$;CHR$(10):
170   FOR c=0 TO 127 STEP 2
180     l=l+2:w=PEEK(l)
190     IF w=0 THEN
200        PRINT #3,r$;b$;
210            ELSE
220        FOR b=7 TO 0 STEP -1
230          PRINT #3,r$;" ";:z=INT(w/2^b)
240          IF z/2<>INT(z/2)THEN PRINT #3,r$;".";
250        END FOR b
260     END IF
270 END FOR c:END FOR r:CLOSE #3
280 END DEFine Dump_Screen
```

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With Kenn Garroch

Graphic confusion

M Michaelson of Basingstoke, Hants, writes:

Q I have been programming my C64 for about six months now, and am still a little confused about the high res graphics modes, particularly, Bit Mapped Multi Colour mode. What I don't understand is where their colours are kept, and how they are represented on the screen. Could you help?

A Bit Mapped Multi Colour mode on the Commodore 64 [illegible] about the most common graphics mode used since it allows four different colours to [illegible] used per character square. To set it up, choose where you want your VIC RAM bank to be, e.g. 0, 1, 2 or 3 and POKE 56576 to select it, for example POKE 56576,2 to select Bank 2 starting at 16384. Next, set bitmap mode with POKE 53265, PEEK (53265) OR 32 and multicolour mode with POKE 53270, PEEK (53270) OR 16. Position the bitmap, and lower colour map with POKE 53272, 121, this starts the bitmap at $6000 ($ denotes hexadecimal notation) and the lower colour map at $5C00.

The screen resolution in this mode is 160×200 with two bits defining one of four colours in the following way

00	Background colour in 53281 (0–15)
01	Hi nibble in lower colour RAM ($5C00)
10	Lo nibble of lower colour RAM ($5C00)
11	Lo nibble of high colour RAM ($D800)

Each of the colour Rams contains 1000 bytes each nibble setting the colour of a 4×8 block of pixels in the bitmap depending on the bits as above. The bitmap is set up as follows:

Each byte contains 4 sets of 2 bits so taking the top left most pixel on the screen, the colour is set with XX000000 where XX can be 00, 01, 10, or 11 each pair refering to [illegible] specific colour. The next pixel to the right is set with 00XX0000, the third with 0000XX00 and the fourth with 000000XX. So, to set the second pixel from the left, in the top row, to the colour specified [illegible] 55296 ($D800) POKE 24576, 32+32 16, i.e. both bits to one. The Bitmap itself is set out in the following way:

Byte contents		Byte contents	
0	00 00 00 00	8	00 00 00 00
1	00 00 00 00	9	00 00 00 00
2	00 00 00 00	10	00 00 00 00
3	00 00 00 00	11	00 00 00 00
4	00 00 00 00	12	00 00 00 00
5	00 00 00 00	13	00 00 00 00
6	00 00 00 00	14	00 00 00 00
7	00 00 00 00	15	00 00 00 00

and so on for 40 blocks or 320 bytes and then for 25 lines

Hence the screen image is made up from 40×25 blocks of eight bytes, each defining 32 pixels hence 32000 pixels or 160×200. To find the location of a specific byte given its X,Y coordinates use the following formula.

```
Memloc=((INT(Y/8))
*320)+(y-(INT(y/8)*8))+
(INT(X/4)*8)
```

This is the offset from the start of the screen so to get the address in memory, add the bitmap start address $6000 (24576).

Once the particular byte is found, the bit pair needed to set the colour are found with BP=X-(INT(X/4)*4) but remember that these are in reverse order, so if:

BP=0 then bits are 0,64,128,192 (pairs are 00,01,10,11)
BP=1 then bits are 0,16,32,48
BP=2 then bits are 0,4,8,12
BP=3 then bits are 0,1,2,3

To actually plot points, you will need to read the memloc+base address, AND with 255-(192,4,12 or 3) and then OR with the appropriate bits. The AND is needed to zero any bits that might be set [illegible] the pair.

Not that the colours are limited to 4 per 4×8 square with the background colour being the same all over the screen. So if you POKE 24576,228 (11 10 01 00) and then POKE 53281,0 POKE 23643,1*16+2 POKE 55296,3 you should see from the left, the colours cyan, red, white and black.

Colourful Commodore

J Aitken of Blackpool, Lancs, writes:

Q I have a Commodore 1901 colour monitor and I would like to connect it to my video recorder to get a good picture. I have tried connecting the video output to the Lum input and get a black and white picture. How can I get colour, and is the sound input compatible with the video recorder's output?

A The 1901 has separate inputs for colour and brightness, video recorders send out their signal as composite colour and brightness. All you need to do to get colour is connect the video signal to both colour and Lum inputs at once.

The sound input for the monitor is compatible with the Hi-Fi 1KΩ standard so if your video has the same output, and most of them do, then you will be able to connect the sound output directly to the monitor input.

Happy viewing!

Colour blindness

Keith Platts of Billingham, Cleveland, writes:

Q I own a CPC464 and am trying to connect it to a Fergusson TX RGB TV/Monitor. Although this is easily done with a ready made lead, the full range of colours are unavailable – only 8 out of the 26. [illegible] possible to connect and get the full range of colours with this monitor, and if so how?

A It sounds as though the cable may be wired up wrongly. The Amstrad RGB is as far as I know, standard. Check that the Lum pin has been connected, if there is one on the TX, if not then this may be the cause of the trouble.

Alternatively, there are two types of RGB signal, linear and non-linear, [illegible] may be that the TX is expecting the opposite to that which the Amstrad puts out if this is the case, there is no way you will get all the colours from the Amstrad onto the TX.

How to do pokes

Colin Robertson of London E2, writes:

Q Can you explain to me how you write "Pokes" for games?

A I presume you mean cheat pokes, inserting different numbers into the code to get more lives, higher score, immunity from death and so on.

I've only ever done it for a few games and then, to a certain extent, by trial and error. How it is done depends on the machine and how well the game is protected.

First of all, you really need to look at the code, and work out what it does, while you are doing this, you will generally find that messages such as 'You lose sucker' can be located. These can be edited and personalised quite easily, by finding their absolute location [illegible] memory when the game is loaded, and then overwriting with the new text. Once the new section [illegible] in, run the game by calling (call,sys,print usr etc) the address of the start of the game.

Altering other sections of the game calls for a little more knowledge of machine code plus a disassembler. Again, depending on the machine, the start address of the game can be found, from the header on the tape, or by looking at the system load address memory location, after the game has been loaded, but not run. Start disassembling from here and you should find that the setup routines that define things like the number of lives can be found. [illegible] you look at where the data for lives is loaded from, you can then alter it so that when the game is run, you live longer.

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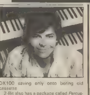
Midi Master for your Atari blaster

Mark Jenkins brings news of a new music package for the Atari and Commodore ranges



It's good to see some of the simpler micros being supported by powerful music software, and the 2-Bit Systems *Midi Master* fills the bill for the Atari 800/800XL/130XE micros (with 48k memory). It's a hardware/software package, but the hardware is very simple – a multipin plug for the Atari's serial disc drive socket, leading to a pair of Din plugs marked I and [illegible] (for Midi [illegible] and Out).

And the software comprises two discs (or one tape), one for the operating system and one for examples. Music is played via Midi, so you'll need appropriate synthesisers – the software plays up to eight monophonic tracks, so two Casio CZ101s in solo mode will fit the bill admirably. We seem to keep returning to the CZ101, but for the past [illegible] months or so it has been by far the most practical way in to Midi synthesis, offering powerful eight-note chords or four different monophonic sounds simultaneously for around £240.

So the software is in effect a self-sufficient real-time eight-track sequencer or composer, but it's also useful for owners of the *Atari Music Composer* cartridge or the disc version of the *Advanced Music System*, since the demo programs included can play tunes from these packages over Midi, either polyphonically over a single Midi channel or monophonically on four different channels simultaneously (which neatly covers the two options offered by the CZ101).

The package also offers two sound editors for the CZ101 and for the budget Yamaha DX100, which in some ways sounds more powerful although it doesn't have the four-voice multitimbral playing option. These allow you to create new sounds and store them to disc or tape, which is a valuable option since both keyboards rely on single data entry sliders for editing and neither has a very informative LCD display.

The main music screen of *Midi Master* is divided into a status line at the top showing memory remaining and metronome time, and the status block which has a section for each of the eight tracks. The Metronome gives audible clicks between 0·1s and 3·1s apart (you can disable the metronome by setting its speed to zero) and the eight-track sections each have the following parameters:

Rec – enable recording and set Midi channel from one to 16.

Ply – enable play and select Midi channel.

Pgm – transmit a memory number from zero to 127 over Midi before play commences. You have to take into account that some synths number patches from 00, others from 01, and others from 11 to [illegible] in banks of eight.

Trp – transpose pitch of track in semitones, plus or minus 99.

Rep – number of repetitions of a track.

Lead – delay lead-in time of a track in 100ths of a second to compensate for delays in long chains of midi instruments.

Gap – control time interval between repetitions of a track.

The *S, L, W, P, R* and *T* keys control *Save, Load, Wipe* (erase a single track), *Play, Record* (one or more tracks simultaneously with an eight-beat count-in if the metronome is enabled) and *Time* (re-time the notes of any track by tapping out the new rhythm on this key).

As you can imagine, *Midi Master* is very easy to use, but since there are no facilities for advanced composition such as track copying, song editing or step time entry of complex phrases, it could become limiting. I don't have much idea of the total capacity – but then, my copy of *Midi Master* stubbornly refused to load, so don't expect any deeply considered opinions on the thing.

2-Bit itself describes the playback facilities for *Music Composer* and *Advanced Music System* files as having some limitations, mainly due to the fact that a lot of effects on these packages are created by repeating notes and envelopes, which doesn't have the same effect over Midi. Future versions are likely to support velocity recording and to cope with the more tractable *Bank Street Music Writer* and Activision *Music Studio* packages.

As for the patch editing facilities – well obviously these will only be of any interest to you if you already have a CZ101 (or 1000, 3000, 5000 or 230S, which can *only* be edited via Midi) or a DX100 (or 21 or 27). The Casio version consists of a simple table of parameters which are altered using the cursor keys which move an orange blob around the screen, and the DX version transfers sounds to the micro and exhorts you to edit the raw Midi parameter data. A valuable facility though, with CZ storage cartridges being very expensive and the DX100 saving only onto boring old cassette.

2-Bit also has a package called *Percussion Master* at £29.95, and this will allow you to load and play up to nine eight-bit samples through a hi-fi or other amplifier and string them into 32 patterns of between four and 32 beats. It's three-drum polyphonic, which means that you can have a hi-hat occuring on a beat which is already occupied by a bass and a snare, for instance.

Midi Master is £27.50 by mail from 2-Bit Systems, 44 Morcom Road, Dunstable LU5 4EG.

Exciting news from Steinberg, which has completely re-vamped its range of computer music products and introduced several new items and updates.

The *Pro-24* package (£250) for the Atari 520ST/1040ST, which allows you to compose 24 channels of polyphonic Midi information, is now capable of reading the SMPTE code used to synchronise music to films and video. Steinberg have cannily introduced a SMPTE code generator which connects to the micro's RS232 port – it will be around £600.

Also on the Atari front, a music notation/scorewriter program, and a visual editing package for the Akai S900 sound sampler, which is becoming very popular (due November/December, prices to be announced). The latter package will include the ability to convert S900 files to Prophet 2000/2002 files, which is good news for owners of either sampler (assuming they want to pinch each other's sounds!).

For the Commodore, Steinberg has repackaged the Pro-16 composer on a cartridge so you don't have to load the software from disc at the start of each session. Pro-16S is £239 and has sync-to-tape and graphic editing capabilities, and Pro-16 Plus at £299 also has a scorewriting function.

On disc, the range now includes editors and sound library packages for the budget Roland Alpha Juno 1&2 (JUNO – £80), and for the powerful Korg DW8000 (DWK – £80). The basic Commodore-Midi interface is £55, the INT version with sync-to-tape is £150.

Steinberg Research, The Spendlove Centre, Charlbury, Oxford OX7 3PQ. Tel: 0608 811325.

All aboard for Ireland

A new board for Ireland, an ST special, and answers to readers' queries from David Wallin

Lots more letters to answer this week; to start off with, queries about new boards.

The first board is called Dubbs, and going by its specifications, it's some sort of super-board. Dubbs is the only board I know of that runs in the Republic of Ireland and the sysop (Stephen Kearon) says it is the first.

This, claims Stephen, has attracted a good deal of interest in the board, which has resulted in Miracle Technology donating a V22bis WS3000 modem (one of the top modems available, and is in the same range as Pace's Series 4).

This sounds like a good deal to get started with, until you hear which computer was donated: a Commodore Amiga, with three 3½ inch drives and hard disc promised soon. The Amiga was donated by the Tomorrow's World Group in Dublin.

Sounds a good board (it certainly ought to be!), so why not give it a ring on Dublin 885634 (to ring Dublin from within the UK, dial 0001-(number))? The hours are 8pm till 8am, Monday to Friday, and 24 hours at the weekend. Speeds of access are just about all the ones I can think of: 300/300, 1200/75, 1200/1200 and 2400/2400 baud (a couple missing like 75/1200 and 600/600 but hardly anyone uses these speeds; come to think of it, who uses 2400/2400 baud). The modems cost a fortune – in excess of £500. The format of the speed (ie, Bell or CCITT, not data protocol) was not stated so CCITT will work, but I think the WS3000 is a Bell modem as well, and Bell tones may work. The data protocol (word length, start bits and stop bits) is either 8N1 (standard BB) or 7E1 (Viewdata – Prestel and Communitel boards), automatically detected on 1mg mn. Some Viewdata terminal software does *not* allow any sort of scrolling, and these won't work – if you're not sure about your software, give Dubbs a try and find out.

Now for some details on the board called ACS BBS, sponsored by Atlas Computer Supplies. It is aimed particularly at ST users and this is reflected in particular by free downloads for the ST and an ST programming Sig which contains most of the source codes for the finished programs.

> *"ACS BBS has a competition Sig which donates any money it generates to charity. It is the first board I know of to do this, and it is aimed particularly at ST users"*

The sysop, Paul Camilleri, who runs the board on behalf of Atlas Computer Supplies, feels that there are a lot of ST users out there with communications software and hardware who are just waiting for and need a BBS of this sort. It also has a competition Sig which donates any money it generates to charity, and the first board I know of to do this. Personally I think it's a good thing. One thing that may be of interest is the sysop's Telecom Gold mailbox number, which is 72:MAG90433.

The speeds are V21/V23 (300/300 or 1200/75), with an 8N1 protocol (standard BB protocol). It's online from 10pm till 9am, seven days a week. Lastly, the phone number: 01-591 6687. Although I said the board seems to be aimed at ST users, you can log on without an ST is you want.

Next on to a problem. Mike Westgate of Berks, has E-Mailed me telling of his problem concerning using Joyce to access Viewdata systems. He says that Sage Soft's *Chit-Chat Club* doesn't handle colour text and backgrounds very well, and when the two are encountered on one frame its content is hidden. Try phoning Sage Soft, Mike, and ask its technical staff for help, as you can give them a detailed description of what's happening and they may have some ideas.

If not, secondly you could try a different piece of software: I can recommend *Comm+* from Modem House. The big difference you will notice between *Comm+*'s viewdata screens and *Chit-Chat's* is the *Comm+*'s are 40 column and take up just under half of the screen, whereas *Chit-Chat* uses the full screen.

I cannot guarantee that *Comm+* will not have the same problem, but I have never encountered it (either with *Comm+* or *Chit-Chat*). Contacting Margolis, which wrote *Comm+*, may give you a guarantee or at least some help as to whether or not it will happen. Margolis' address is 105 Foundling Court, Brunswick Centre, Marchmont Street, London WC1N 1AN. I've no phone number for them, I'm afraid.

The next problem is from Bob Macmahon, simply asking for help or advice with the VTX 7-11 package, especially on 300/300 buad, as he appears to have problems. If anyone out there has any possible answers, then phone Prometheus (the board with my communications section) and select number eight from the main menu and leave the answer: it will be put up on the board where Bob can see it. Prometheus is a Viewdata board and the number is 01-300 7177. If you don't have a Viewdata emulator on your software then either E-Mail or snail mail me and I'll make sure Bob sees it. I'll also print any advice on the VTX 7-11 in the magazine as, from what I can make out, others are having problems with the 7-11 package as well.

One quick question, from Glen – left on Prometheus with no surname. Is 300/300 available on a VTX 5000? Well, I'm not sure, but I've heard people talk about this a bit and I think it is possible to get 300/300 on the VTX 5000 somehow. If anyone out there has done so, or knows how to, please let me know as I think others would also like to know.

Nick Morris wants to know of Amstrad speciality boards. Well, there's Ros PCW for Amstrad PCW 8256 owners. The number for Ros is 0902-788683 at 300/300 baud. There are others, and I'll let you know of them in a week or two, when I've sorted some out.

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AMSTRAD CPC users Amsmeet, the Londonwide club that actually meets! There's no membership fees. Interests: printing, graphics, basic, MC, adventure writing/solutions, PD CP/M software, electronics. Tel: Paul 01-300 0126.

ATARI 800 1080 disc drive, [illegible] years old. Several hundred pounds software inc. Pilot, Forth, Assembler and lots of books, games etc. Must be seen £150 Tel: Steven (Gravesend) 0474 321654 or 64608.

SPECTRUM PLUS, interface one, two microdrives, AMX mouse, Philips monitor, 30 cartridges, Tasword three, accounts, plus masses of other software. Giveaway price £250 or will split. Tel: Dawson 0252 710157 evenings

CBM 128, 1541 disc drive, freeze frame + quickdisc cartridges, mouse, joysticks modem, Trackball and over 85 discs and 100 cassettes – altogether worth over £3000. Sell for £749 Tel 0202 682195 after 6 p.m.

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COMMODORE 128 and 1570 disc drive only five months old, excellent condition, boxed. Plus superb software expert cartridge, cost £800. Sell £400. Genuine offers only. Buyer collects. Tel 0302 868550

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New Releases

Pick of the week

John Cook looks through this week's new arrivals

Amstrad CPCs

Program *Kwah!* **Type** Graphic adventure **Price** £8.95 **Micro** All CPCs **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston Upon Thames, Surrey KT1 4DB.

Program *Back to Reality* **Type** Arcade **Price** £1.99 **Micro** All CPCs **Supplier** Mastertronic 8–10 Paul Street, London EC2.

Program *ZUB* **Type** Arcade **Price** £2.99 **Micro** All CPCs **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Program *Kentilla* **Type** Adventure **Price** £1.99 **Micro** All CPCs **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Program *1942* **Type** Arcade/simulation **Price** £8.95 cassette, £14.95 disc **Micro** All CPCs **Supplier** Elite Systems, Anchor House, Anchor Road, Aldridge, Walsall WS9 8PW.

Program *Infiltrator* **Type** Arcade/simulation **Price** £9.95 **Micro** All CPCs **Supplier** US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

Atari XL/XE

Program *Crystal Raider* **Type** Arcade **Price** £1.99 **Micro** Atari 8-bits **Supplier** Mastertronic, 8–10 Paul Street, London EC2

Program *Atari Smash Hits Volume 6* **Type** Compilation **Price** £9.95 twin cassette, £14.95 twin disc **Micro** Atari 400/800/XL/XE **Supplier** English Software, 1 North Parade, Parsonage Gardens, Manchester M60 1BX.

Atari ST

Program *Strip Poker* **Type** Simulation **Price** £19.95 **Micro** Atari ST **Supplier** Anco, 35 West Hill, Dartford, Kent, DA1 2El.

ATARI
SMASH
Hits

Program *World Games* **Type** Simulation **Price** £24.99 **Micro** Atari ST **Supplier** US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

Program *Jewels of Darkness* **Type** Adventure **Price** £19.95 **Micro** Atari ST **Supplier** Rainbird, 74 New Oxford Street, London WC1A 1PS.

Having been converted to virtually every other format the Level 9/Rainbird package, *Jewels of Darkness*, has now been released for the Atari ST. Unfortunately, despite Rainbird's claims, the graphics in the adventures have not been improved from the versions for eight-bit machines. In fact, they are probably the worst illustrations I can recall on any graphic adventure for the ST.

Still, in the ST market, £20 for three good adventures represents excellent value for money.

Commodore 16/Plus 4

Program *Kane* **Type** Arcade **Price** £1.99 **Micro** C16/Plus/4 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Program *Bridgehead* **Type** Arcade **Price** £5.95 **Micro** C16/Plus/4 **Supplier** Anco, 35 West Hill, Dartford, Kent DA1 2EL

No holds barred

Whatever you care to call them – Dungeon's & Dragon's, role-playing games – programs like *The Bard* have been around almost as long as the microcomputer itself.

The Bard's Tale

But *The Bard* is state of the art. The game universe has been well thought out, lots of magic, character classes, attributes and weapons, lots of graphics and some good sound effects.

There are some highly original touches too. For example, the game is named for the key player in your adventuring party, the bard himself. The bard weaves about by playing and singing magical tunes. But when his throat get dry, you'll have to run for the nearest tavern and get some ale down him.

There's plenty of exploring for map freaks, loads of atmosphere for adventuring types, and buckets of blood for barbarous hack 'n' slayers.

The only thing to be said against it is that it's completely disc based, so not only do you need a drive but patience as well, because certain actions involve a fair bit of disc access.

But this is a minor quibble. *The Bard* looks destined to be a classic. Watch out for a full review next week.

Program *The Bard's Tale* **Type** Role playing adventure **Price** £14.95 disc only **Micro** Commodore 64/128 **Supplier** Ariolasoft, Long Acre, London WC2.

Commodore 64/128

Program *Kwah!* **Type** Graphic adventure **Price** £8.95 **Micro** Commodore 64 **Supplies** Melbourne House, 60 High Street, Hampton Wick, Kingston Upon Thames, Surrey KT1 4DB.

Program *Back to Reality* **Type** Arcade **Price** £1.99 **Micro** Commodore 64 **Supplier** Mastertronic, 8–10 Paul Street, London EC2

CASSETTE
CAPCOM

Program *1942* **Type** Arcade/simulation **Price** £9.95 cassette, £14.95 disc **Micro** Commodore 64 **Supplier** Elite Systems, Anchor House, Anchor Road, Aldridge, Walsall WS9 8PW.

Program *Computer Hits 10 Volume 3* **Type** Compilation **Price** £9.95 **Micro** Commodore 64/128 Supplier Beau Jolly, 29A, Bell Street, Reigate, Surrey

10
COMPUTER
hit
3
10 ORIGINAL HIT GAMES

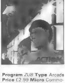
Program *Captured* **Type** Arcade Adventure **Price** £9.95 cassette, £14.95 disc **Micro** Commodore 64/128 **Supplier** American Action, Boc 10090, 200 43, Sweden.

New Releases

The Swedes have no great reputation in the software market and looking at *Captured* from American Action of Malmo it's not hard to see why.

Captured is a platform game with over 100 screens to try your patience. It has everything every other platform game has, moving bits, sprites and things and also some smart bombs which clear all the bad blobs off the screen. The graphics are staggeringly unoriginal and a mournful little tune accompanies the whole dismal affair.

Animation of your sprite is smooth enough but turning around is slow, usually fatally slow. If you're a platform game junkie then here's another one to consider. For me, this program totally failed to capture my interest.



Program *ZUB* **Type** Arcade **Price** £2.99 **Micro** Commodore 64 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Program *World Games* **Type** Simulation **Price** £9.99 cassette, £14.99 disc **Micro** Commodore 64 **Supplier** US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

Commodore Amiga

Program *Jewels of Darkness* **Type** Adventure **Price** £19.95 **Micro** Amiga **Supplier** Rainbird, 74 New Oxford Street, London WC1A 1PS.

IBM PC Compatibles

Program *Dambusters* **Type** Simulation **Price** £19.99 **Micro** IBM and compatibles **Supplier** US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX

Program *Bruce Lee* **Type** Simulation **Price** £19.99 **Micro** IBM and compatibles **Supplier** US Gold, Unit 2 and 3, Holford, Birmingham B6 7AX.

Program *World Games* **Type** Simulation **Price** £24.99 **Micro** IBM and compatibles **Supplier** Epyx/US Gold Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

Spectrum

Program *ZUB* **Type** Arcade **Price** £2.99 **Micro** Spectrum 48/128 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Program *Prehistoric Adventure* **Type** Text adventure **Price** £9.95 **Micro** Spectrum 48K **Supplier** Crusader Computing, 18 Henley Wood Road, Earley, Reading Berks RG6 2EE.

Prehistoric
Adventure

Straightforward text adventures still find a place in the hearts of many adventurers – "the atmosphere created by text is much more evocative than some rather primitve pictures", is the most commonly heard quote from the traditionalists.

Unfortunately "atmosphere created by text" all too often means sub-Tolkien prose, rather than rich evocative description.

Prehistoric Adventure written by a new company, Crusader Computing, does rather fall into this trap; alternative 'olde worlde' screen font, and "the Bold Adventurer heads westward knowing that he alone can save the Old Man now".

However, for the text adventure fan it may well be worth a look. Set around Stonehenge, in a world populated by dinosaurs, and other prehistoric animals, your quest is to find and bring back the legendary Amaranth fruit from a distant island in order to brew an elixer of life.

The parser accepts two words per move of a verb-noun format only, which in these days of Infocom and Level 9 scenarios is a bit limiting. Apart from the prehistoric animals, I doubt there's anything remarkably novel about the adventure, but I suspect it'll have your brain working in overdrive if you get into it

Oh yes, and there's a free glossy wall chart depicting various Stone Age animals – clear a space on your bedroom wall now!

Program *Swords of Bane* **Type** Fantasy/wargame **Price** £7.95 **Micro** Spectrum 48K, with expanded 128K version **Supplier** CCS, 14 Langton Way, London SE3 7TL.

Don't all shout at once if I'm wrong, but I think that this is the first strategic computer game with a fantasy scenario. You control a unit of the Imperial guards, sent out to quell an invasion of monsters. After selecting your team from the various wizards and warriors available, you proceed to battle, using either joystick or keyboard to position your forces.

There are two versions of the game on the cassette; the 128K version contains three scenarios rather than one, and has a larger playing area.

The map graphics are clear and colourful, and the strategy involved in marshalling your wizards and warriors to defeat the enemy is considerable. Movement points, weapons ranges, and all the usual paraphernalia of strategy games are included.

Swords of Bane deserves a look by fantasy fans and strategists alike; note though that there is no two player option; the little demon living in your computer is the only opponent available.

Charts

Top Twenty

1	(2)	Infiltrator	**Mindscape/US Gold**
2	(13)	1942	**Elite**
3	(1)	Fist II	**Melbourne House**
4	(5)	Trivial Pursuit	**Domark**
5	(3)	Paperboy	**Elite**
[illegible]	(8)	Ninja Master	**Firebird**
7	(19)	Computer Hits Vol 3	**Beau Jolly**
8	(12)	Lightforce	**Faster Than Light**
9	(4)	Druid	**Firebird**
10	(6)	Thrust	**Firebird**
11	(9)	Ghosts and Goblins	**Elite**
12	(7)	Dragon's Lair	**Software Projects**
13	(11)	Ollie and Lisa	**Firebird**
14	(-)	The Great Escape	**Ocean**
15	(10)	Dan Dare	**Virgin**
16	(—)	Warhawk	**Firebird**
17	(—)	Dandy	**Electric Dreams**
18	(—)	180	**Mastertronic**
19	(18)	Go for Gold	**Americana**
20	(—)	Happiest Days	**Firebird**

All figures compiled by Gallup/Microscope

Ziggurat

A musical carthorse

I remember when I first acquired a home computer, and would continually sound off about its talents and skills to all available friends and relations. My sister-in-law asked, "But could it do the *Guardian* crossword?" (She can, you see, with devastating speed, so uses this as a benchmark of smartness.)

I pondered for a while and said, "I think it could do anagrams." In fact this became my first real programming project (and one I recommend to computer novices). I struggled with problems of string-slicing and permutation for a good while before I came up with some inelegant Basic that managed to print all the possible anagrams of a given word.

Even as I congratulated myself, though, I realised that the program would be little use to a crossword-solver. Input a three-letter word, and the six possible variations would come smartly on-screen. Input four letters, and the 24 permutations would print up most efficiently. But nobody whose IQ much exceeds their shoe-size has great trouble with four-letter anagrams.

A five-letter input puts you to the bother of sorting through 120 possible answers, and six letters (when anagrams are only beginning to become tricky) produce 720 permutations. Seven letters multiply those possibilities by seven – to 5040. And should you be seeking a musical version of *'carthorse'*, you'd find the elegant answer *'orchestra'* hidden among 362,880 combinations that those nine letters could transform to.

My sister-in-law could finish off several whole puzzles (including a couple of alphabetical jigsaws) before any human could read through all that monstrous list. So perhaps we should make the computer read it, matching each permutation against a dictionary until it finds one that makes English sense. Maybe, but that sort of brute-force solution seems very clumsy.

The reason for that is it's emphatically not the way that human anagram solvers work. I presented some twelve-year-olds with *'Old West action'* and one took only three minutes to find the answer (*'Clint Eastwood'*, of course!). His mind certainly hadn't toiled methodically through the *six thousand million* (honestly!) possible combinations of those 13 letters.

How he did it is probably a mystery to him. Most of us find that at one moment the letters seem intractable, the next the answer is obvious. Possible syllables shift about in our minds, as we use our sense of the way words work and instinctively ignore most of the non-starters (*'lodwestaction'*, *'odlwestaction'*, *'dolwestaction'* . . .) that my simple-minded computer program wastes so much time on.

Douglas R Hofstadter (the *Godel, Escher, Bach* author who has sent thought about Artificial Intelligence racing in many interesting and unexpected directions) has written: "The anagrams problem is one that exemplifies mechanisms of thought that AI people have not explored.

"How do those letters swirl among one another, fluidly and tentatively making and breaking alliances? Glomming together, then coming apart, almost like little biological objects in a cell . . . It is obviously more related to creativity and spontaneity than it is to logical derivations, but that does not make it – or the mode of thinking that it represents – any less worthy of attention."

A program that could embody one's sense of English word-structure, that could find likely syllables and try to tack them on to others, could discriminate between promising and unpromising combinations of letters, could leap from a central syllable to a sense of the entire word, and above all could recognise a satisfying solution when it found one – that would be a real step towards Artificial Intelligence. I wonder how it'd compete with my sister-in-law?

George Simmers

NEXT WEEK

SPECIAL SUPPLEMENT

Buyers guide to peripherals

Over the next three weeks *Popular* will be publishing comprehensive guides to the best buys in peripherals, micros and software.

By the end of the series, your Christmas list (yes, it's nearly that time of year again) should be complete, and you can rest secure in the knowledge that there will be no excuse for getting duff presents this time.

Next week it's peripherals. All you ever wanted to know about the choice of printers, mice, monitors, and modems on the market; the best and brightest value for money add-ons we could find.

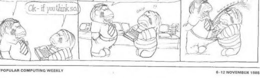
Hardware

The Acorn Master Compact – the latest in Acorn's series based on the BBC B.

Chess

More news from the world of computers and chess from *Colossus* author Martin Bryant.

Hackers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!?
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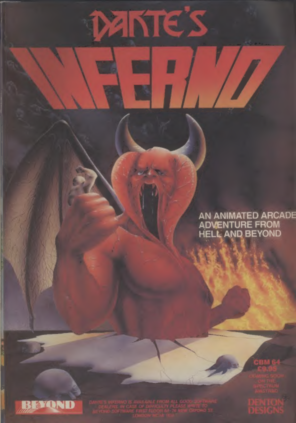
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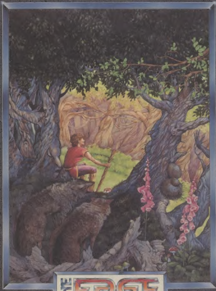
Chronicles of the Land of Fairlight
2. Trail of Darkness



THE EDGE

The Epic continues . . .

Fairlight 1 (The Light Revealed) scooped virtually every award last year. Now in this second part of the epic 'Chronicles' followers of Bo Jangeborg's masterpiece will not be disappointed. Trail of darkness is probably the first true 128K Spectrum game (multiload for 48K Spectrums), and features more than a year of development and improvement to the revolutionary '3D Worldmaker' routines.